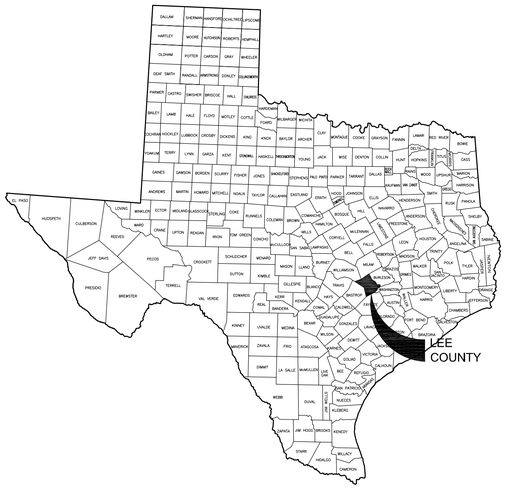
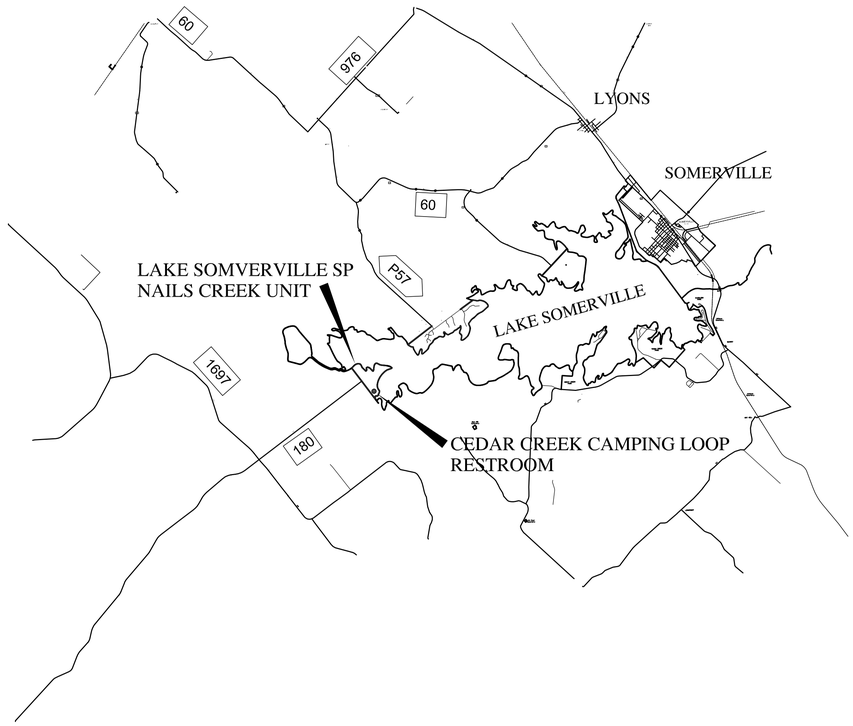


NORTH

COUNTY LOCATION MAP

NOT TO SCALE



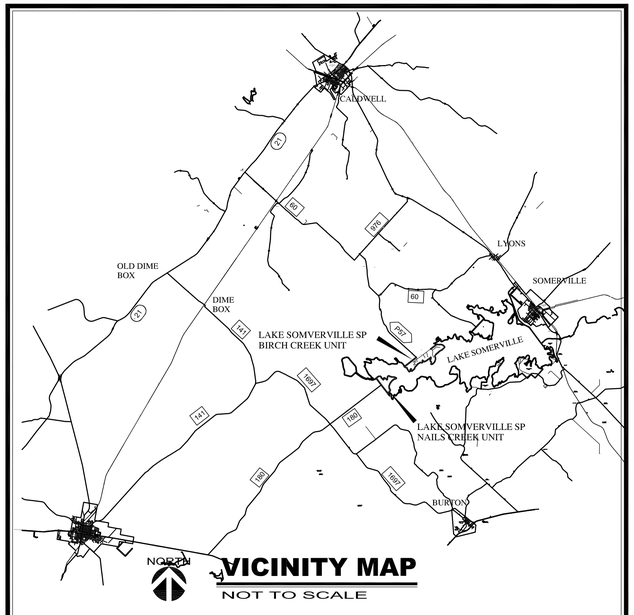
NORTH

SITE LOCATION MAP

NOT TO SCALE

SITE ADDRESS:

LAKE SOMERVILLE STATE PARK
NAILS CREEK UNIT
6280 FM 180
LEDBETTER, TX 78946



NORTH

VICINITY MAP

NOT TO SCALE

PROJECT

LAKE SOMERVILLE STATE PARK
NAILS CREEK UNIT

REPLACE RESTROOM

PROJECT NO: 1211045 DATE: JUNE 2021

INDEX OF DRAWINGS

SHEET NO.	DESCRIPTION
L1	DEMO AND SITE PLANS
L2	RESTROOM DETAILS
L3	SITE DETAILS
P1	PLUMBING SITE PLAN & DETAILS
E1	ELECTRICAL SITE PLAN
E2	ELECTRICAL DETAILS
E3	ELECTRICAL SPECIFICATIONS

BUILDING CODE SUMMARY

A. INTERNATIONAL CODE COUNCIL ADOPTIONS*
1. BUILDING CODE — INTERNATIONAL BUILDING CODE 2015
2. STRUCTURAL CODE — INTERNATIONAL BUILDING CODE 2015
3. PLUMBING CODE — INTERNATIONAL PLUMBING CODE 2015
4. MECHANICAL CODE — INTERNATIONAL MECHANICAL CODE 2015
5. GAS CODE — INTERNATIONAL FUEL GAS CODE 2015
6. RESIDENTIAL CODE — INTERNATIONAL RESIDENTIAL CODE 2015
7. EXISTING BUILDINGS — INTERNATIONAL EXISTING BUILDINGS CODE 2015
* International Fire Code omitted in lieu of TPWD's implementation of National Fire Protection Association codes. International Energy Conservation Code 2015 omitted in lieu of Energy Standard for Buildings, ASHRAE/IESNA Standard 90.1 (2013).

B. NATIONAL FIRE PROTECTION ASSOCIATION
1. ELECTRICAL CODE — NATIONAL ELECTRIC CODE, NFPA-70 2020
2. FIRE CODE — NFPA - 1 2015
3. LIFE SAFETY CODE — NFPA - 101 2015

C. STATE ENERGY CONSERVATION OFFICE (SECO)/TEXAS COMPTROLLERS OFFICE
1. ENERGY CODES FOR STATE BUILDINGS - Energy Conservation Design Standards: Texas Administrative Code, Title 34, Part 1,Ch.19, Subchapter C
a. COMPLIANCE WITH THE ENERGY CONSERVATION DESIGN STANDARD OF THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)/ASHRAE/ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA (IESNA), ENERGY STANDARD FOR BUILDINGS, ANSI/ASHRAE/IESNA STANDARD 90.1 (2017)
See SECO website for State Funded Buildings, New Construction and Major Renovation Requirements and SECO Compliance Certification Forms
2. WATER CONSERVATION STANDARDS FOR STATE BUILDINGS - Energy Conservation Design Standards: Texas Administrative Code, Title 34, Part 1, Ch.19, Subchapter C
a. COMPLIANCE WITH THE WATER CONSERVATION DESIGN STANDARDS FOR STATE BUILDINGS AND INSTITUTIONS OF HIGHER EDUCATION FACILITIES, STATE ENERGY CONSERVATION OFFICE (SECO), 2016
See SECO website for Texas Water Conservation Design Standards, Requirements and SECO Compliance Certification / Reporting Form

D. ACCESSIBILITY CODES
1. US DEPT. OF JUSTICE, 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN
2. ARCHITECTURAL BARRIERS ACT ACCESSIBILITY GUIDELINES; OUTDOOR DEVELOPED AREAS, NOVEMBER 25, 2013
3. 2012 TEXAS ACCESSIBILITY STANDARDS, ELIMINATION OF ARCHITECTURAL BARRIERS, TEXAS GOVERNMENT CODE, CHAPTER 469

E. PLAYGROUND SAFETY CODE
1. ASTM F1487-17, STANDARD CONSUMER SAFETY PERFORMANCE SPECIFICATIONS FOR PLAYGROUND EQUIPMENT FOR PUBLIC USE
2. ASTM F2223-15, STANDARD GUIDE FOR ASTM STANDARDS ON PLAYGROUND SURFACING

DESIGN TEAM

LANDSCAPE ARCHITECT
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SCOPE OF WORK

TPWD CONTRACTOR SCOPE OF WORK INCLUDES PURCHASING AND INSTALLING A PREFABRICATED CONCRETE RESTROOM, DEMO THE EXISTING RESTROOM AND CONCRETE WALKS, REMOVING EXISTING UTILITY CONNECTIONS TO THE EXISTING RESTROOM, REPAIRING THE GRAVEL BUILDING PAD, STUB UP UTILITIES TO THE BUILDING PAD, CONNECTING THE NEW RESTROOM TO EXISTING WATER, SEWER, AND NEW RACK MOUNTED MAIN ELECTRIC SERVICE PANEL, STRIPING THE PARKING LOT, INSTALLING ACCESSIBLE PARKING SIGNS, CONSTRUCTING NEW WALKWAYS, FINISH GRADING, AND GRASS SODDING.

TEXAS PARKS & WILDLIFE

TEXAS PARKS AND WILDLIFE

INFRASTRUCTURE DIVISION

4200 SMITH SCHOOL ROAD · AUSTIN, TEXAS 78744-3292

REGISTERED LANDSCAPE ARCHITECT
WILLIAM M. McDONALD JR.
2822
STATE OF TEXAS
05/28/21

wmcdonal 06/08/2021 8:47:25 PM

TEXAS PARKS & WILDLIFE
RELEASED FOR SOLICITATION
INFRASTRUCTURE DIVISION

100% CD

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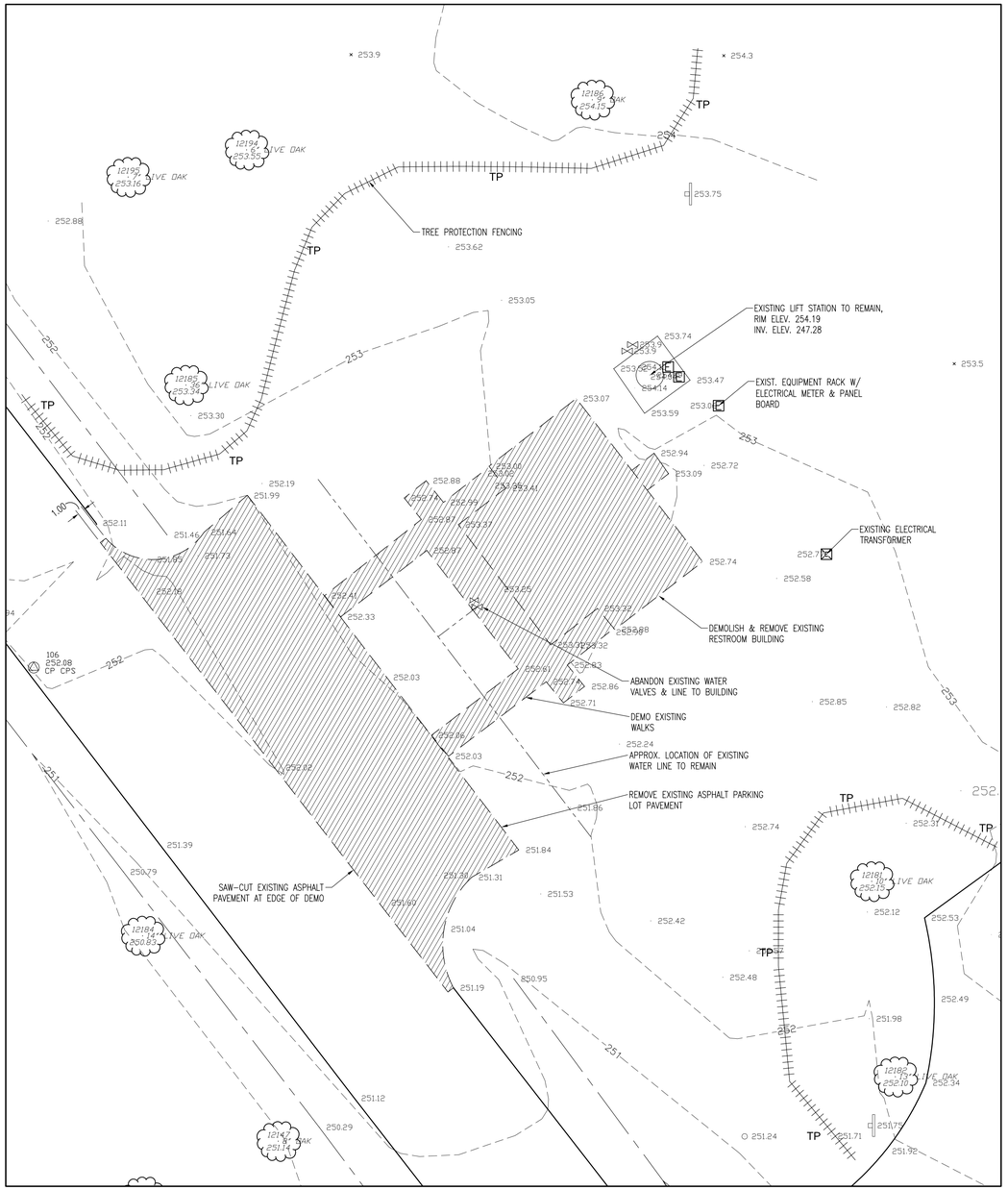


1 CEDAR CREEK RESTROOM DEMO/ TREE PROTECTION PLAN

SCALE: 1"=10'-0"

NORTH

Point	Northing	Easting	Elevation	Description
105	10086927.165	3455042.211	249.25	CP CPS (OPUS PT)
106	10087198.968	3454814.870	252.08	CP CPS
109	10089918.941	3456662.437	243.40	CP BRASS DISK IN CONC (OPUS PT)
12153	10087062.628	3454984.396	250.44	FD BRASS CAP IN CONC

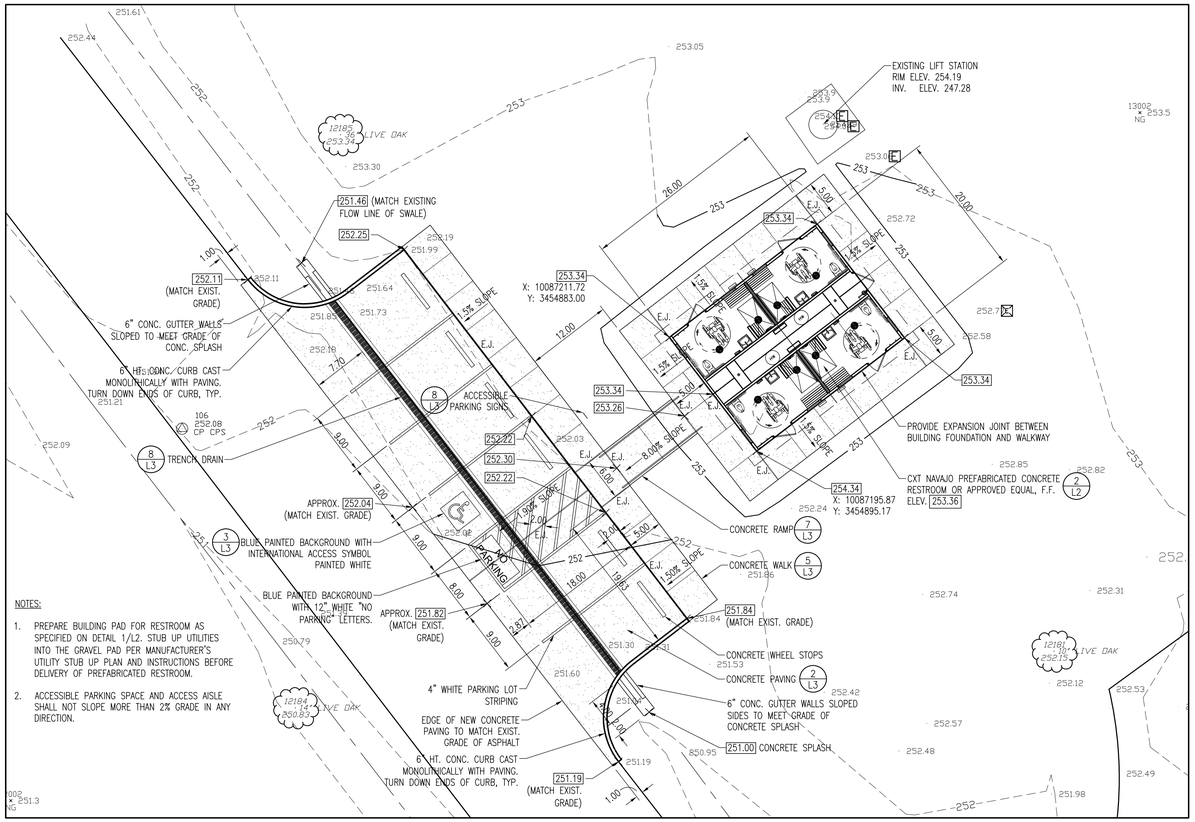
3 SURVEY CONTROL

LEGEND

- DEMO AREA
- EXISTING CONTOUR (253)
- EXISTING TREE TO REMAIN (12185, 36" LIVE OAK, 253.34)
- FINISH SPOT GRADE (253.43)
- TREE PROTECTION FENCING (TP)
- FINISH GRADE CONTOUR (253)
- NEW UNDERGROUND ELECTRIC LINE (UGE)
- NEW 2" SCH. 40 PVC WATER LINE (2"W)
- NEW 4" SEWER LINE (4"S)
- SOLID SOD 609 BUFFALO GRASS

GENERAL NOTES:

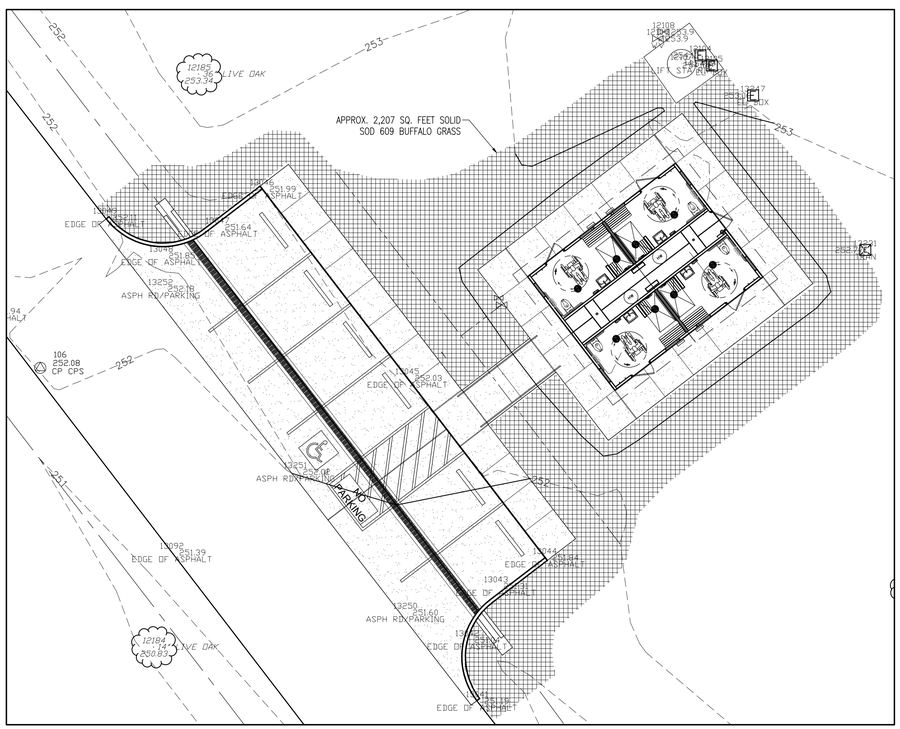
1. TPWD CONTRACTOR SCOPE OF WORK INCLUDES PURCHASING AND INSTALLING A PREFABRICATED CONCRETE RESTROOM, DEMO THE EXISTING RESTROOM AND CONCRETE WALKS, REMOVING EXISTING UTILITY CONNECTIONS TO THE EXISTING RESTROOM, PREPARING THE GRAVEL BUILDING PAD, STUB UP UTILITIES TO THE BUILDING PAD, CONNECTING THE NEW RESTROOM TO EXISTING WATER, SEWER, AND POWER SERVICE, STRIPING THE PARKING LOT, INSTALLING ACCESSIBLE PARKING SIGNS, CONSTRUCTING NEW WALKWAYS, FINISH GRADING, AND GRASS SODDING.
2. CONTRACTOR SHALL INSTALL TREE PROTECTION FENCING BEFORE START OF CONSTRUCTION AND MAINTAIN TREE PROTECTION UNTIL PROJECT ACCEPTANCE.
3. VERIFY POINT OF CONNECTION TO EXISTING UTILITIES ON SITE.
4. UTILITY CONNECTIONS SHALL MEET ALL APPLICABLE PLUMBING AND ELECTRICAL CODES.



2 CEDAR CREEK RESTROOM SITE PLAN

SCALE: 1"=10'-0"

NORTH



3 CEDAR CREEK RESTROOM LANDSCAPE PLAN

SCALE: 1"=10'-0"

NORTH

TEXAS PARKS & WILDLIFE

REGISTERED LANDSCAPE ARCHITECT WILLIAM B. McDONALD IV 1820 STATE OF TEXAS

05/28/21

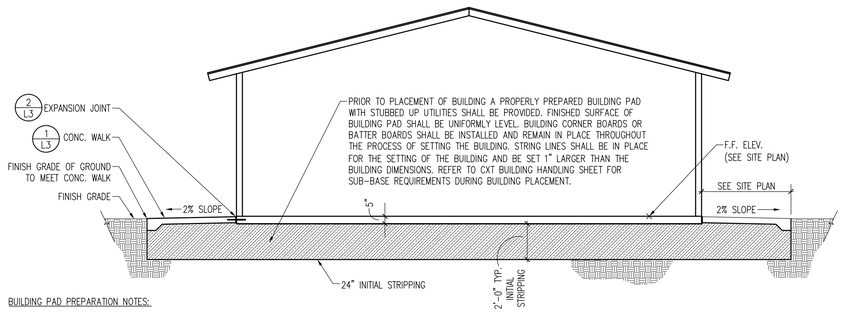
LAKE SOMERVILLE NAILS CREEK STATE PARK
REPLACE CEDAR CREEK RESTROOM
PROJECT NUMBER: 1211045

DATE: 05-28-2021
DESIGNED BY: BMc
DRAWN BY: BMc
REVIEWED BY:
REVISED:
REVISED:
REVISED:

SHEET TITLE
SITE PLAN

SHEET NUMBER
L1
OF

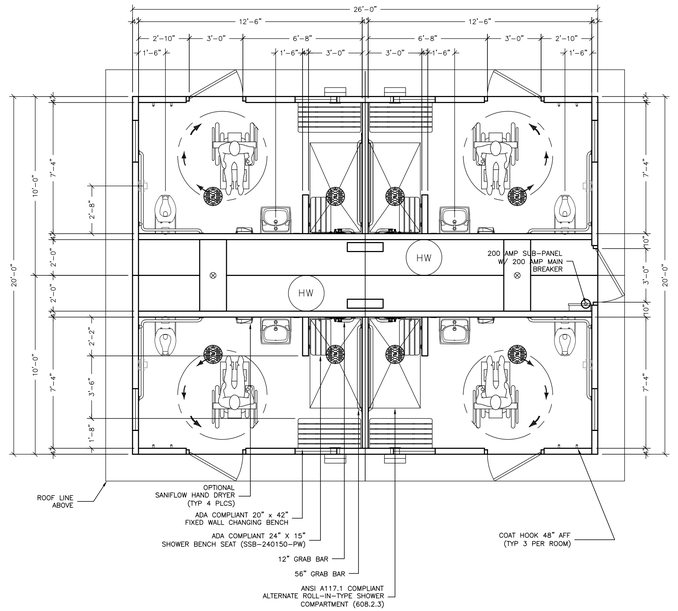
PATH: C:\Users\wmcdonal\Documents\Facilities\som-nc_p121\1211045_Replace Restroom\acad\1211045_L sheets.dwg



BUILDING PAD PREPARATION NOTES:

1. REMOVE EXISTING SOIL TO A DEPTH OF 24". SALVAGE TOPSOIL FOR FILL AREAS OUTSIDE OF BUILDING PAD. DISPOSE EXCESS EXCAVATED SOIL OFF SITE.
2. PROOF ROLL THE EXPOSED SUB-GRADE WITH APPROPRIATE CONSTRUCTION EQUIPMENT. IF EXCESSIVELY WET OR SOFT AREAS ARE EVIDENCED DURING THE PROOF ROLLING OPERATIONS, THE SOIL SHOULD BE REMOVED TO EXPOSE COMPETENT SUBGRADE SOILS IN BOTH THE HORIZONTAL AND VERTICAL LIMITS. PLACE 6" SIZE ROCK TO PROVIDE PROPER SUPPORT FOR COMPACTION EFFORTS IF NECESSARY.
3. SCARIFY AND MOISTURE CONDITION THE TOP 6" OF THE EXPOSED SUB-GRADE SOIL BETWEEN OPTIMUM AND +4 PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT. COMPACT THE SUB GRADE TO AT LEAST 98% OF THE MAXIMUM DRY DENSITY DETERMINED IN ACCORDANCE WITH ASTM D-698.
4. SELECT FILL MEETING REQUIREMENTS OF 2004 TxDOT ITEM 247, TYPE A, GRADE 3 OR BETTER SHOULD THEN BE PLACED IN THE BUILDING OVER PAD AREA TO ACHIEVE A FINISHED BUILDING PAD ELEVATION THAT IS 5" BELOW THE PROPOSED FINISH FLOOR ELEVATION SHOWN ON THE SITE PLAN.
5. PLACE SELECT FILL IN HORIZONTAL LIFTS NOT TO EXCEED 6 INCHES IN COMPACTED THICKNESS.
6. THE SELECT FILL SHOULD BE MOISTURE CONDITIONED WITHIN -2 AND +2 PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT AND COMPACTED TO AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-698 (STANDARD PROCTOR).
7. EACH LIFT SHOULD HAVE A MINIMUM OF THREE FIELD DENSITY TESTS BEFORE THE NEXT LIFT IS PLACED.
8. INSTALL STUBBED UP UTILITIES AFTER PREPARATION OF BUILDING PAD. RECOMPACT BUILDING PAD AFTER STUBBED UP UTILITY PLACEMENT INSTALLATION AND PRIOR TO BUILDING PLACEMENT.

1 BUILDING PAD DETAIL
SCALE: 1/4"=1'-0"



NOTES:

1. ORDER & INSTALL A CXT NAVAJO PREFABRICATED CONCRETE RESTROOM OR APPROVED EQUAL. SUBMIT STATE OF TEXAS SEALED ENGINEERED PLANS AND CXT COLOR CHART FOR OWNER'S APPROVAL BEFORE ORDERING BUILDING. CONTACT CXT SALES REP BOB VEALS AT PHONE (252)404-5147, EMAIL: RVeals@bfoster.com.
2. PROVIDE THE PREFABRICATED CONCRETE RESTROOM WITH THE FOLLOWING STANDARD FEATURES AND OPTIONS:

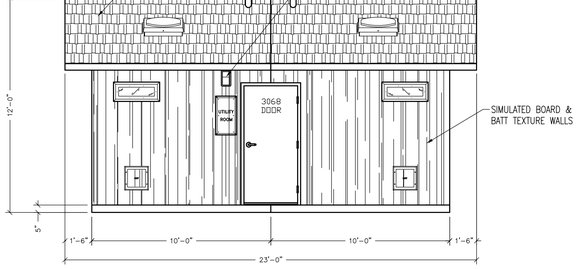
   STANDARD FEATURES:

   JAVA BROWN COLOR BOARD & BATT TEXTURE WALLS, SAGE GREEN COLOR CEDAR SHAKE TEXTURED ROOF, INTERIOR AND EXTERIOR LIGHTS, HOT WATER HEATER, AND MODULAR SHOWER UNITS.

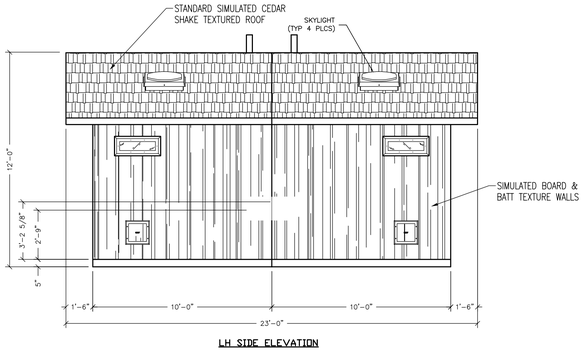
   OPTIONS TO BE INCLUDED:

   STAINLESS STEEL LAVATORIES, ELECTRIC HAND DRYERS, SKYLIGHTS, FIBERGLASS ENTRY AND CHASE DOORS AND FRAMES, EXTERIOR FROST PROOF HOSE BIB WITH BOX, AND BABY CHANGING STATION, DARK SKY COMPLIANT EXTERIOR LIGHTS, EXHAUST FAN UPGRADE PART #RVF6XL, SAN JAMAR #R4000TBK 9" TOILET PAPER DISPENSER, EMERGENCY LIGHTS W/ LED LAMP HEADS W/ MINIMUM 90 MINUTE OPERATION TO SATISFY 2015 NFPA REQUIREMENTS MOUNTED ON CHASE WALL IN EACH ROOM, 2 - 4500 INPUT SINGLE ELEMENT HW HEATERS, 4 - STANDARD HAND DRYERS, 4 - MOTION ACTIVATED EXHAUST FANS, 4 - LED LIGHTS IN SHOWER AREAS AND 1 IN CHASE, 2 - MOTION ACTIVATED OUTSIDE LIGHTS, GFI OUTLETS IN EACH RESTROOM AND 1 IN CHASE AREA, GFI OUTLET IN CHASE AREA TO ACCOMMODATE A HEATER (BY OTHERS), AND BEST 9K SERIES CYLINDRICAL LOCKSET WITH ACCESSIBLE LEVER F90 DORMITORY FUNCTION (SEE INFORMATION BELOW).
3. EXTERIOR DOORS SHALL BE PROVIDED WITH ANSI GRADE 1 HEAVY DUTY CYLINDRICAL LOCKSET WITH ACCESSIBLE LEVER HANDLES EQUAL TO BEST 9K SERIES W/ F90 DORMITORY FUNCTION. SFIC KEYED LOCK ON OUTSIDE LEVER LOCKS OR UNLOCKS THE OUTSIDE LEVER. PUSH BUTTON ON INSIDE LEVER LOCKS OR UNLOCKS THE OUTSIDE LEVER.
4. EXTERIOR DOOR HARDWARE SHALL COMPLY WITH THE 2015 LIFE SAFETY CODE.
5. BOLT LOCKS SHALL NOT BE INSTALLED ON RESTROOM DOORS DUE TO STATE OF TEXAS FIRE MARSHALL REQUIREMENTS.
6. RESTROOM FLOOR PLAN AND ELEVATION DETAILS ON THIS SHEET ARE FOR REFERENCE ONLY AND HAVE BEEN PROVIDED WITH PERMISSION OF CXT.

2 FLOOR PLAN
SCALE: 1/4"=1'-0"

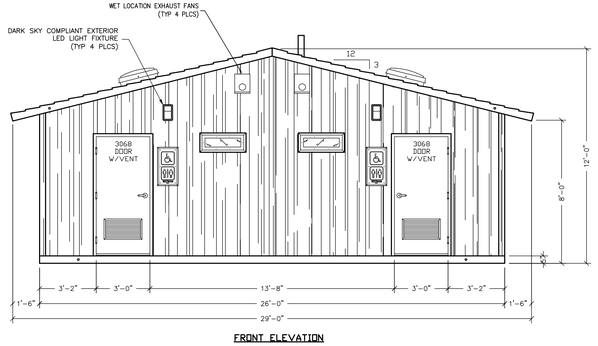


RH SIDE ELEVATION

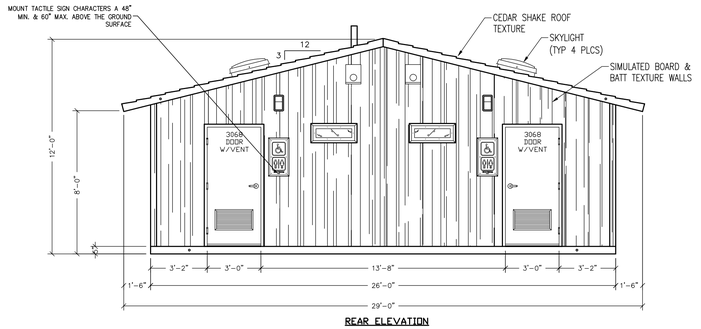


LH SIDE ELEVATION

3 BUILDING ELEVATIONS
SCALE: 1/4"=1'-0"

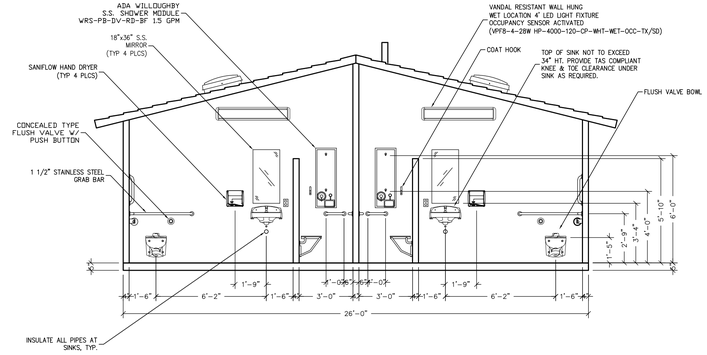


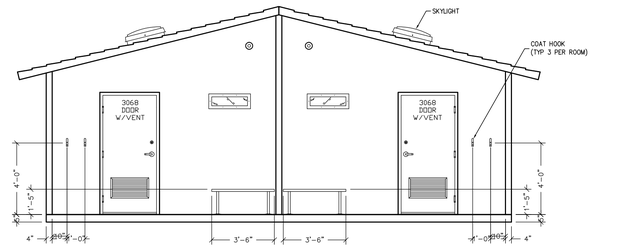
FRONT ELEVATION



REAR ELEVATION

4 BUILDING ELEVATIONS
SCALE: 1/4"=1'-0"





5 INTERIOR ELEVATIONS
SCALE: 1/4"=1'-0"

TEXAS PARKS & WILDLIFE

REGISTERED LANDSCAPE ARCHITECT WILLIAM B. McDONALD JR. 1820 STATE OF TEXAS

05/28/21
(Pad Detail Only)

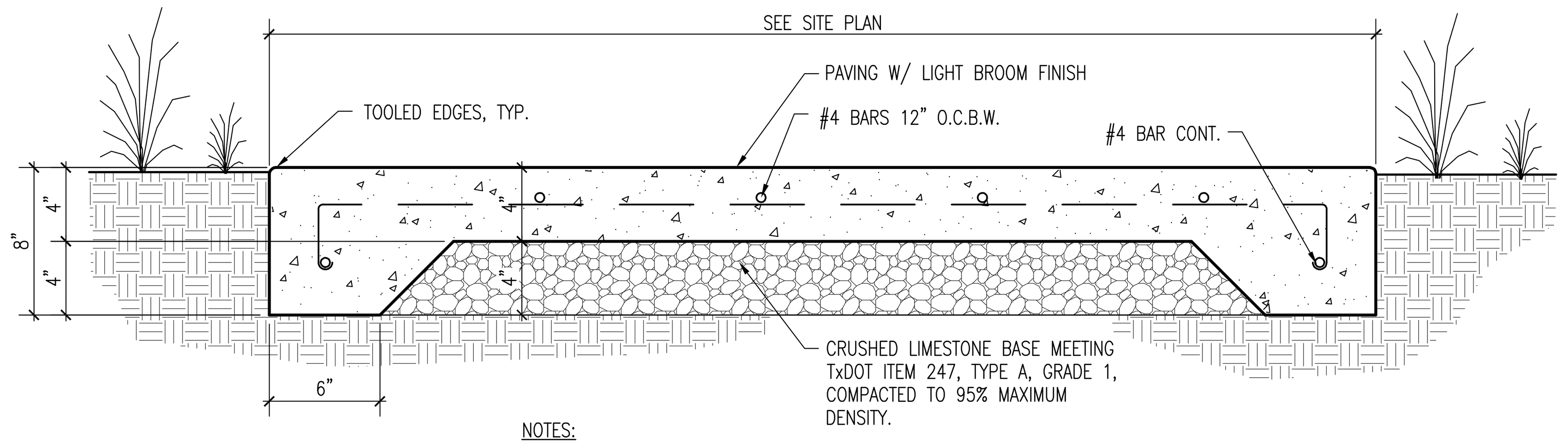
LAKE SOMERVILLE NAILS CREEK STATE PARK
REPLACE RESTROOM
PROJECT NUMBER: 1211045

DATE: 05-28-2021
DESIGNED BY: BMc
DRAWN BY: BMc
REVIEWED BY:
REVISED:
REVISED:
REVISED:

SHEET TITLE
SITE DETAILS

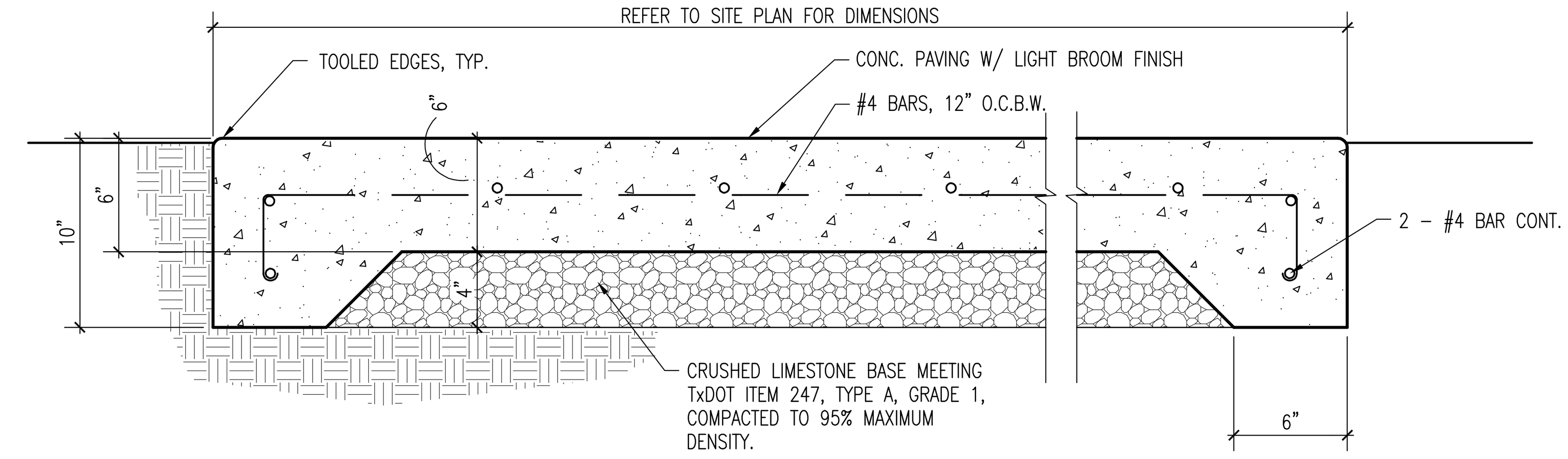
SHEET NUMBER
L2
OF

PATH: C:\Users\wmcdonal\Documents\Facilities\som-nc_p121\1211045_Replace Restroom\acad\1211045_L sheets.dwg



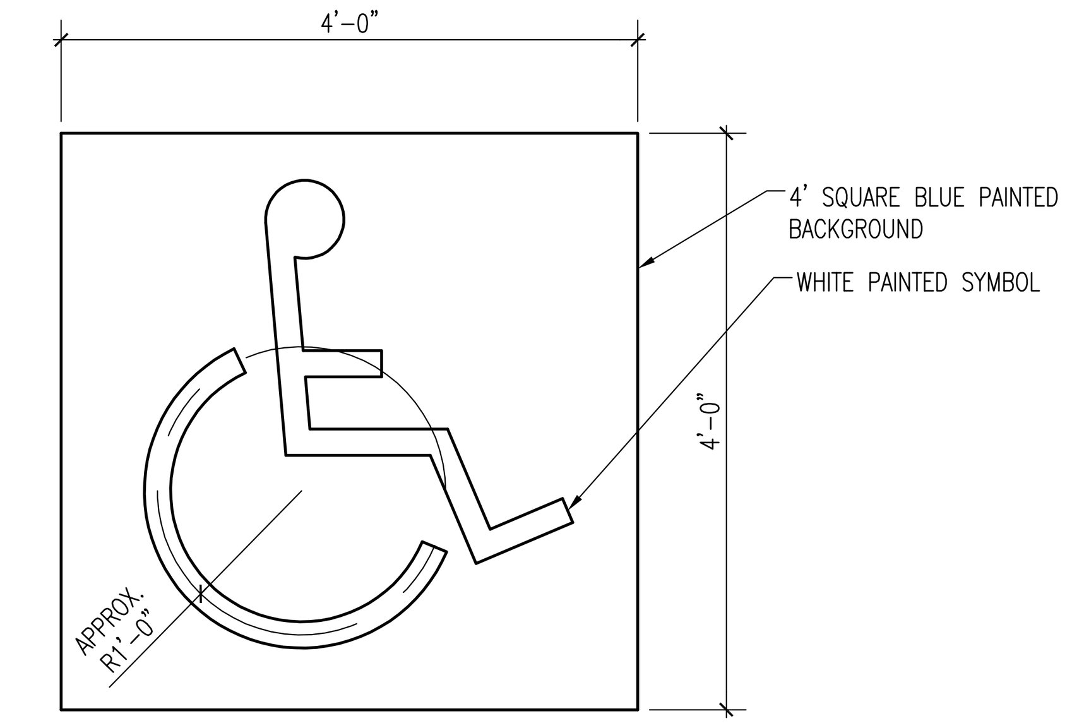
NOTES:
1. LOCATE EXPANSION JOINTS AND CONTROL JOINTS AS INDICATED BY SITE PLAN.
2. CONCRETE TO HAVE A 28 DAY 4000 P.S.I. COMPRESSIVE STRENGTH, SLUMP LIMIT OF 4" PLUS OR MINUS 1", AND MAXIMUM RATIO OF WATER-CEMENTITIOUS MATERIAL OF 0.45 AT POINT OF PLACEMENT.
3. PROVIDE CHAIRS TO HOLD REINFORCING IN POSITION DURING CONCRETE POUR.
4. AFTER FORM REMOVAL, BACKFILL TOPSOIL AGAINST SIDES OF PAVEMENT TO TOP OF PAVEMENT.

1 CONCRETE WALK
SCALE: 1 1/2"=1'-0"

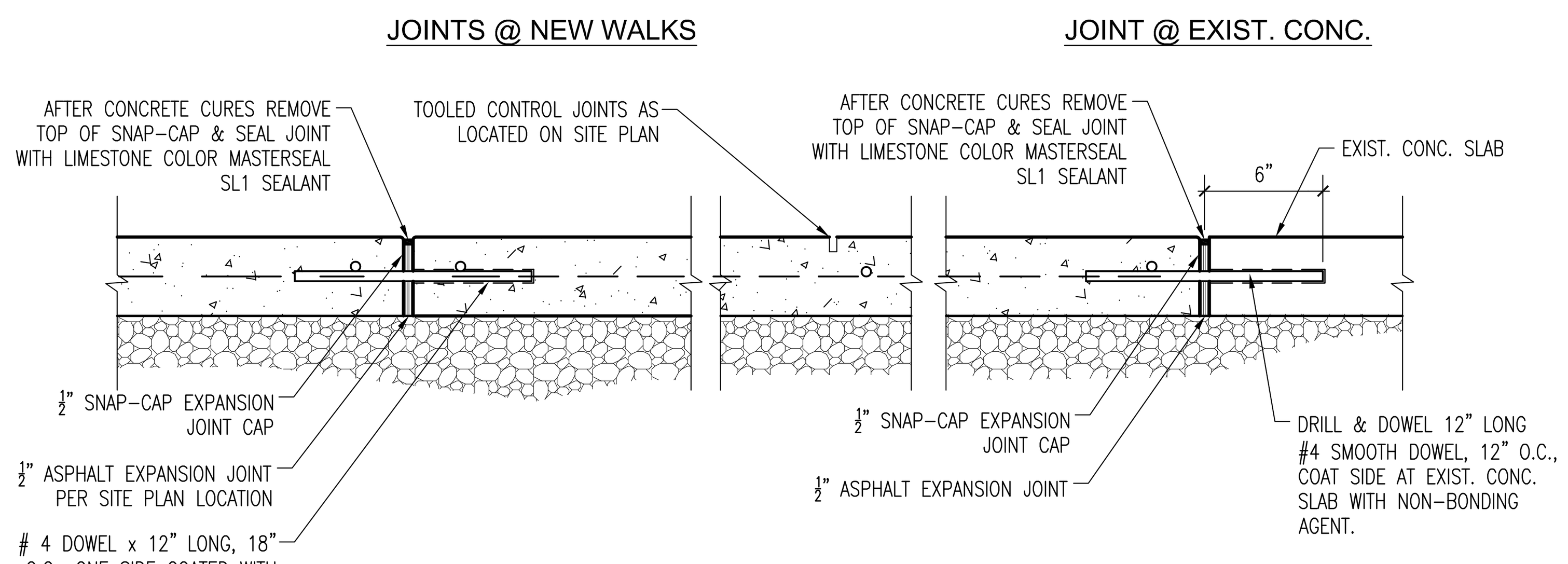


NOTES:
1. LOCATE EXPANSION JOINTS AND CONTROL JOINTS AS INDICATED BY SITE PLAN.
2. CONCRETE TO HAVE A 28 DAY 4000 P.S.I. COMPRESSIVE STRENGTH, SLUMP LIMIT OF 4" PLUS OR MINUS 1", AND MAXIMUM RATIO OF WATER-CEMENTITIOUS MATERIAL OF 0.45 AT POINT OF PLACEMENT.
3. PROVIDE CHAIRS TO HOLD REINFORCING IN POSITION DURING CONCRETE POUR.
4. AFTER FORM REMOVAL, BACKFILL TOPSOIL AGAINST SIDES OF PAVEMENT TO TOP OF PAVEMENT.

2 TYPICAL CONCRETE PARKING PAVEMENT
SCALE: 1 1/2"=1'-0"



3 HANDICAP MARKING DETAIL
SCALE: 3/4"=1'-0"



4 TYPICAL EXPANSION AND CONTROL JOINTS
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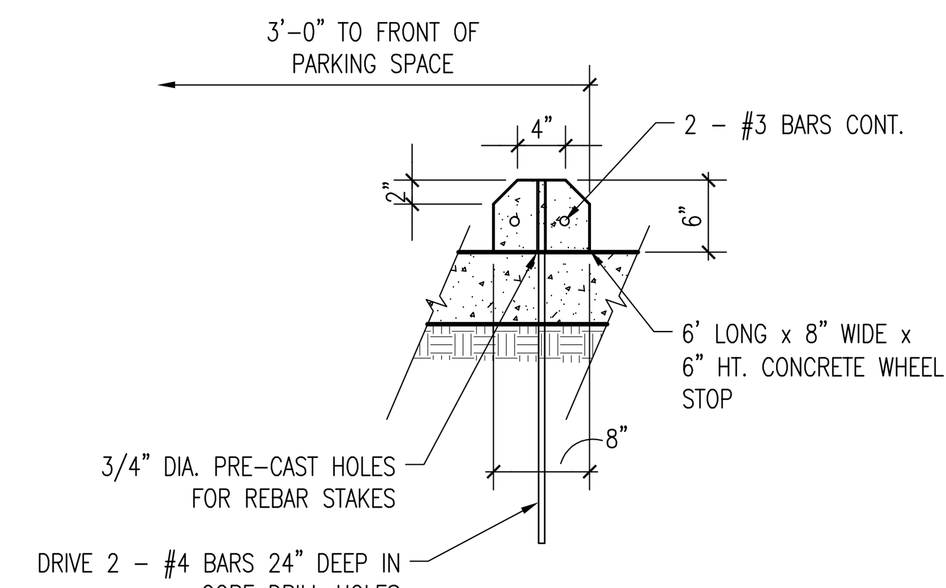
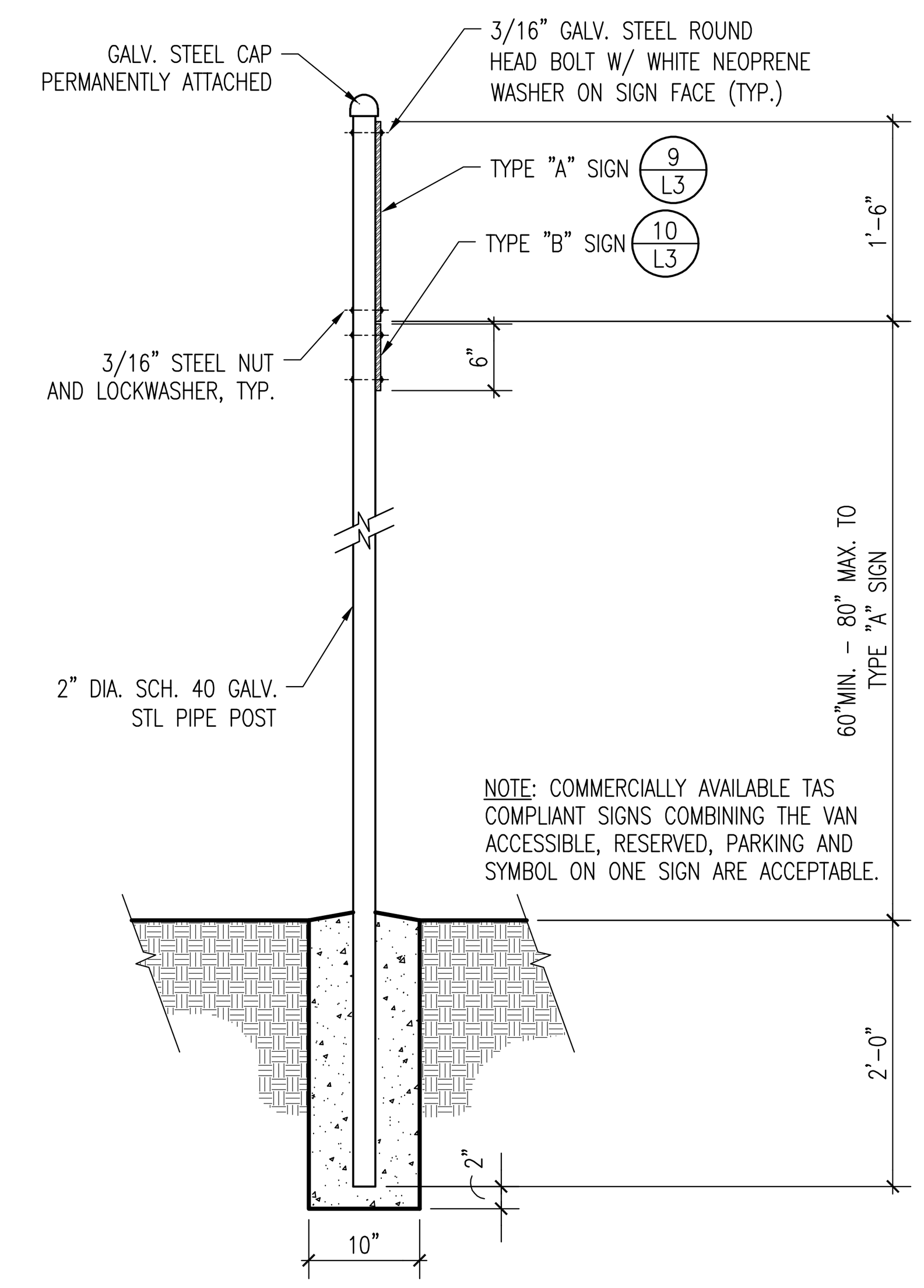
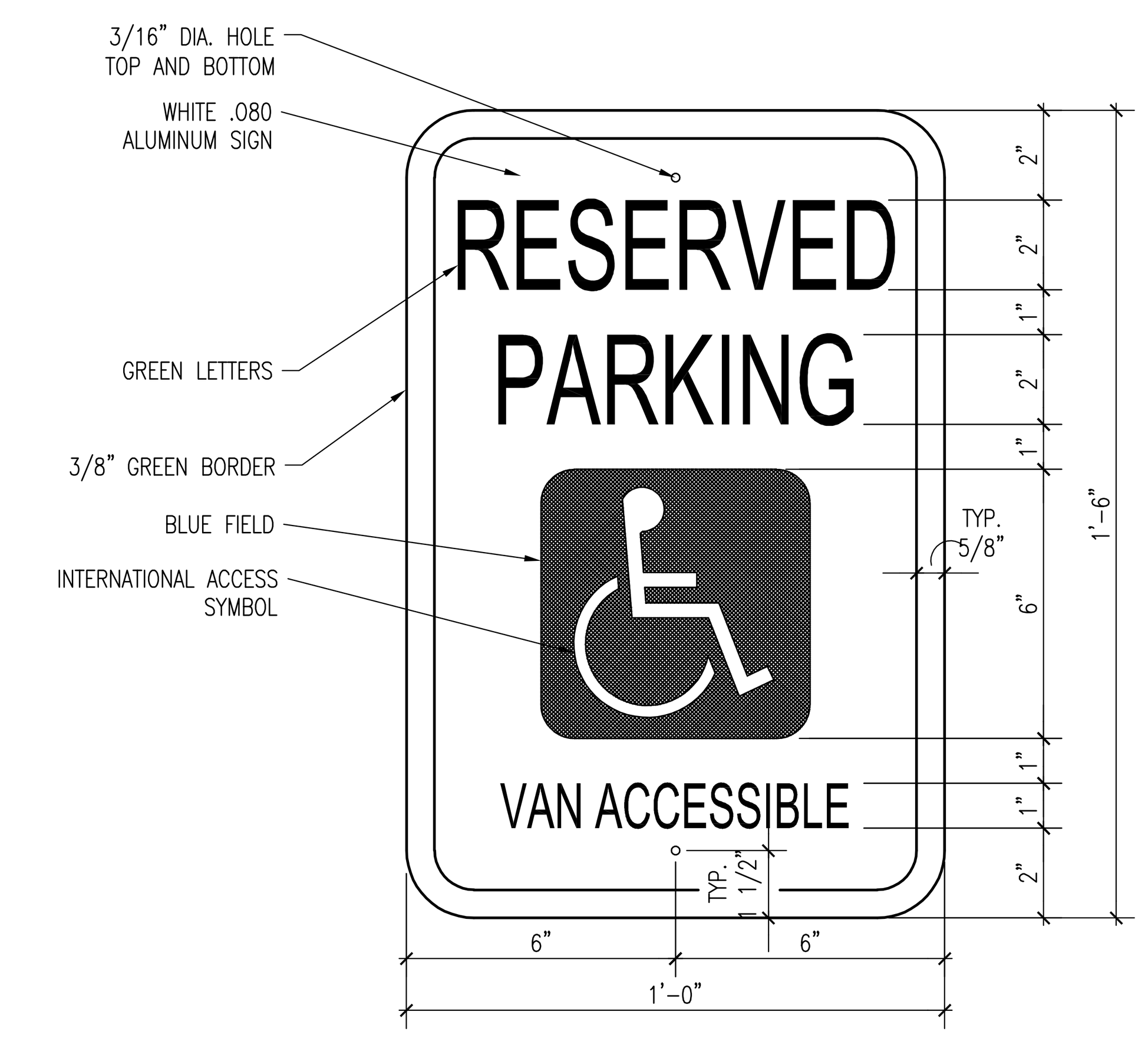


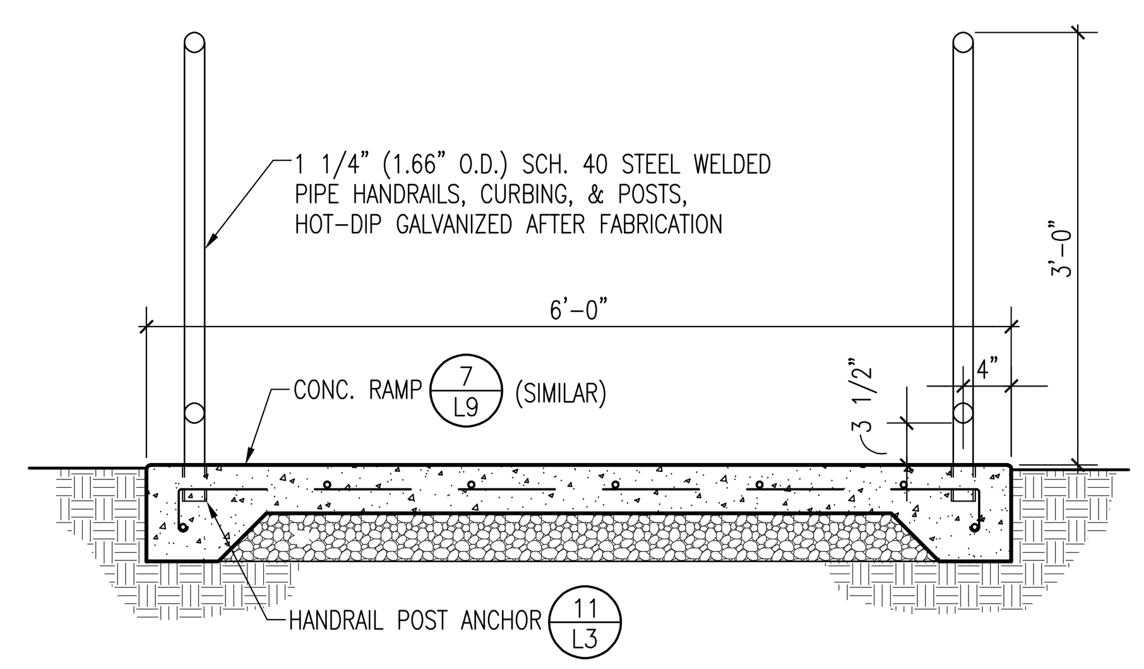
5 WHEEL STOP
SCALE: 3/4"=1'-0"



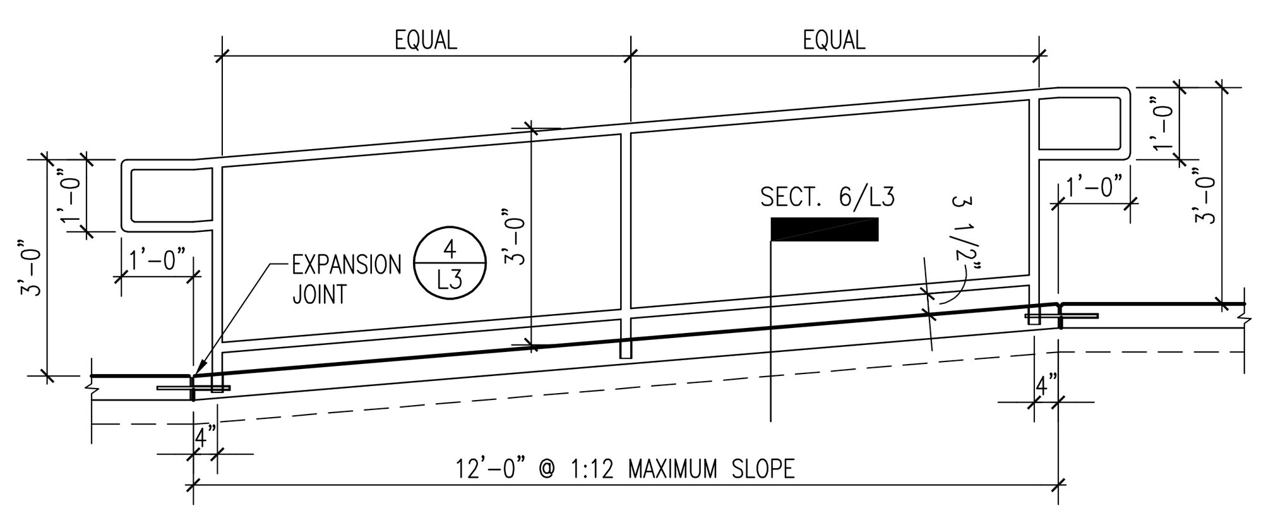
8 ACCESSIBLE PARKING SIGNS ON POST
SCALE: 3/4"=1'-0"



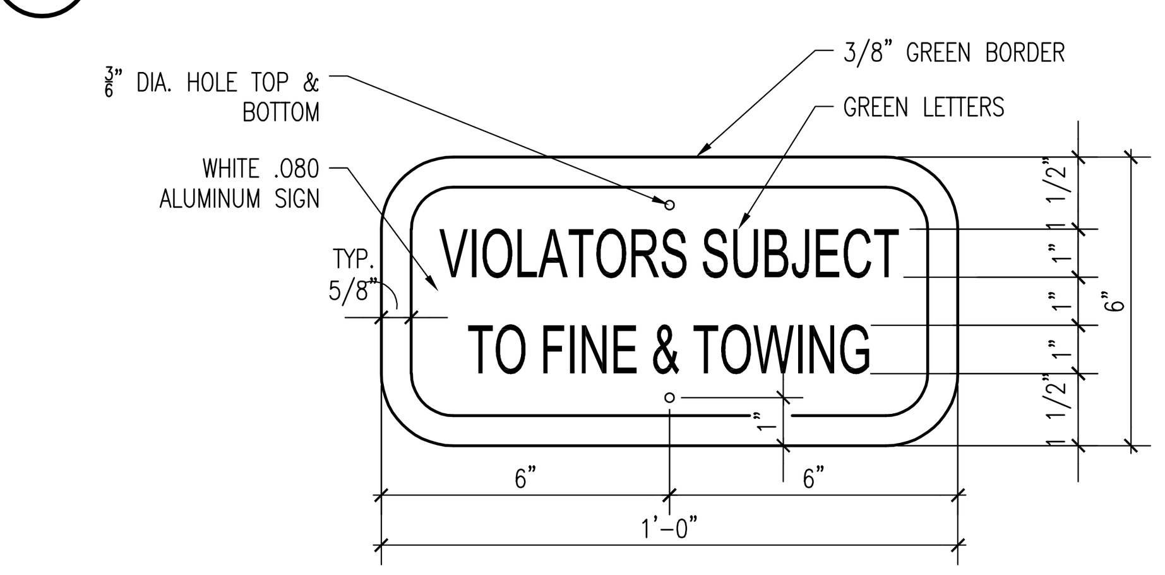
9 TYPE "A" SIGN
SCALE: 3"=1'-0"



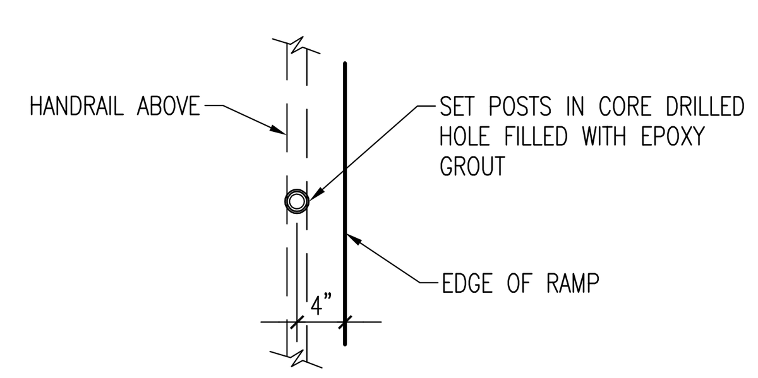
6 CONCRETE RAMP
SCALE: 3/4"=1'-0"



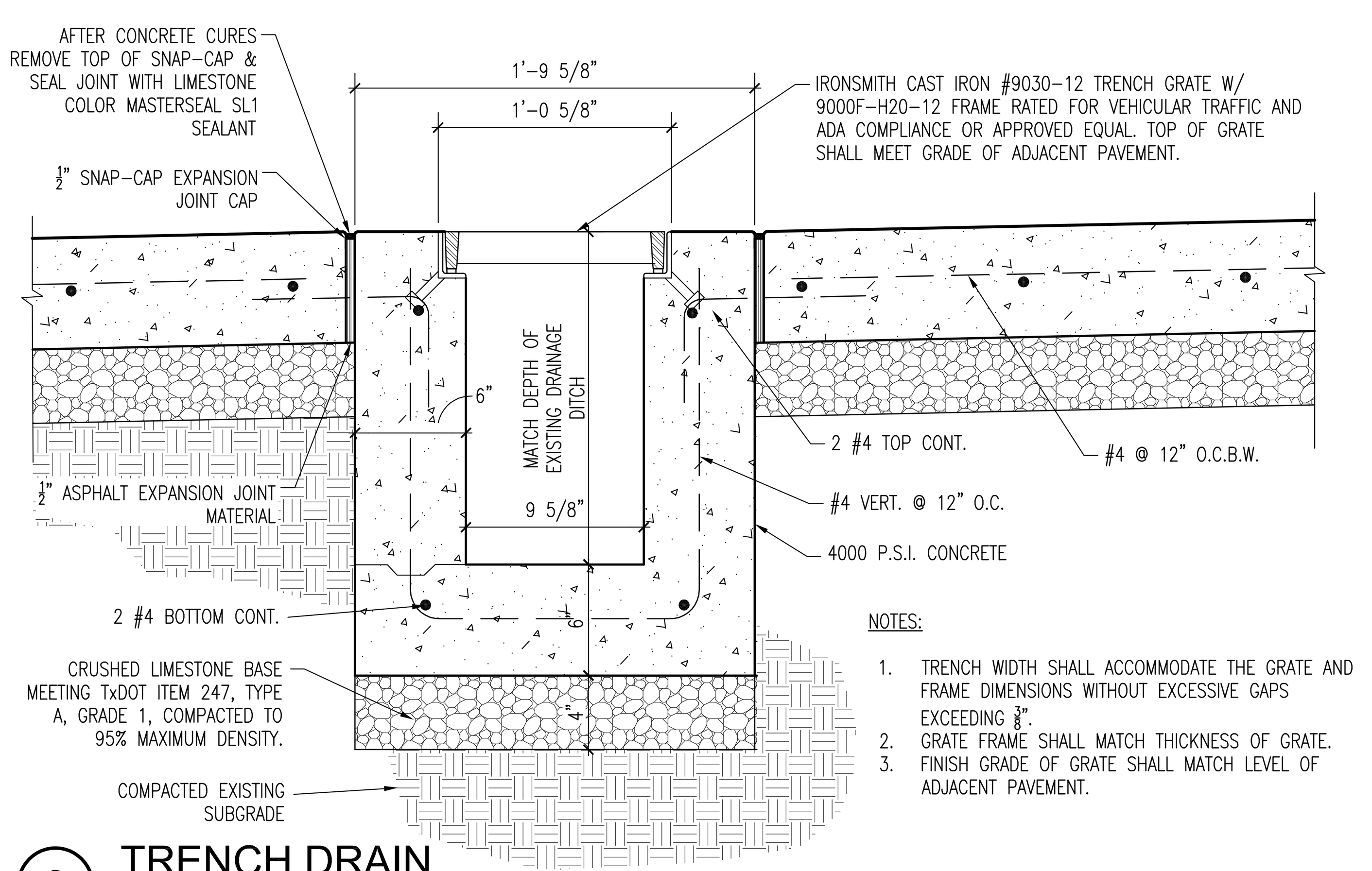
7 ELEVATION - CONCRETE RAMP
SCALE: 3/8"=1'-0"



10 TYPE "B" SIGN
SCALE: 3"=1'-0"

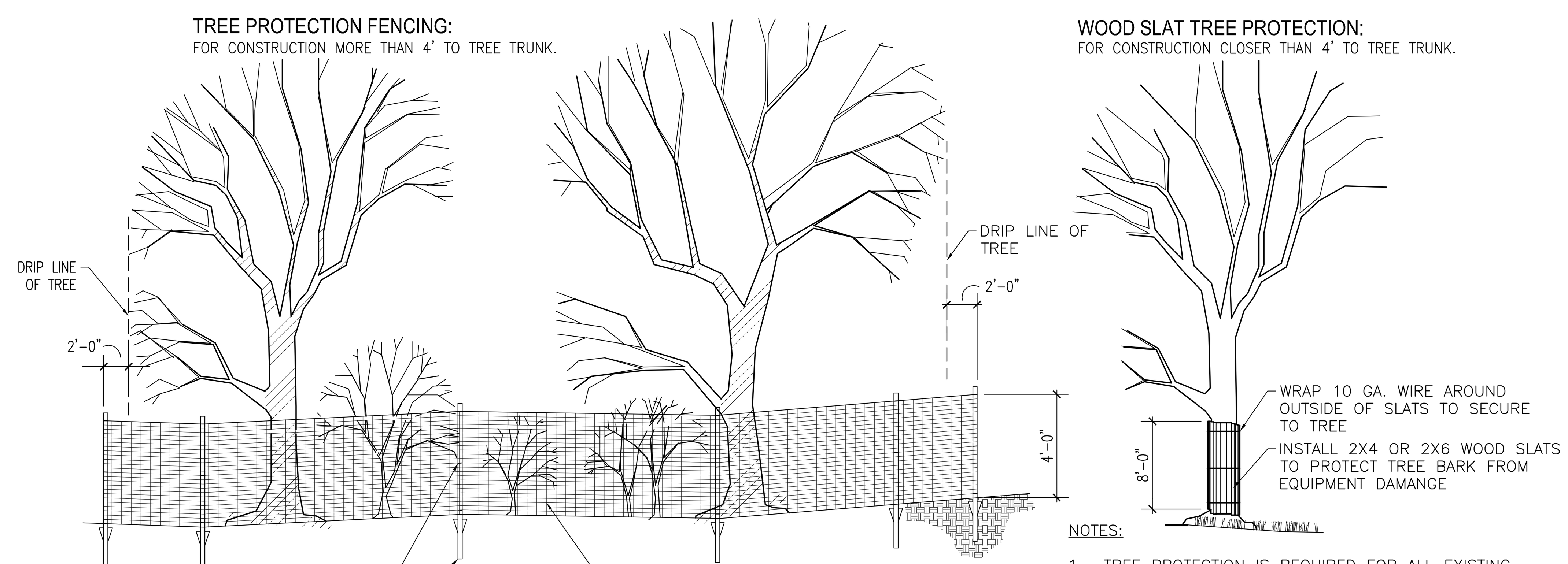


11 TYP. HANDRAIL POST ANCHOR
SCALE: 3/4"=1'-0"



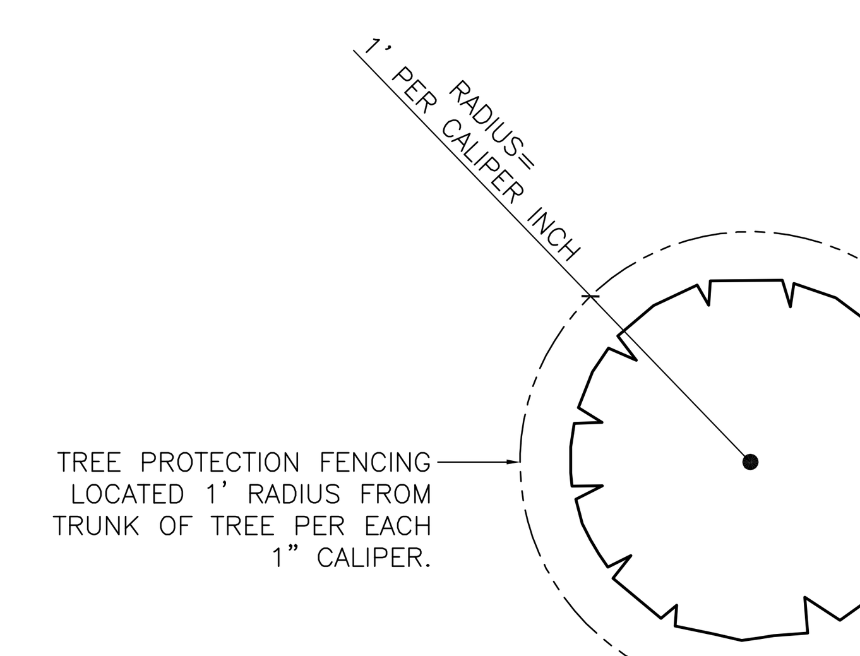
NOTES:
1. TRENCH WIDTH SHALL ACCOMMODATE THE GRATE AND FRAME DIMENSIONS WITHOUT EXCESSIVE GAPS EXCEEDING ⅜".
2. GRATE FRAME SHALL MATCH THICKNESS OF GRATE.
3. FINISH GRADE OF GRATE SHALL MATCH LEVEL OF ADJACENT PAVEMENT.

8 TRENCH DRAIN
SCALE: 1 1/2"=1'-0"



NOTES:
1. TREE PROTECTION IS REQUIRED FOR ALL EXISTING TREES WITHIN 20' OF THE LIMITS OF CONSTRUCTION.
2. INSTALL WOOD SLAT TREE PROTECTION WHEN CONSTRUCTION IS CLOSER THAN 4' TO TREE TRUNK.
3. INSTALL TREE PROTECTION FENCING WHEN CONSTRUCTION IS FURTHER THAN 4' TO TRUNK.
4. PARKING OR VEHICULAR TRAFFIC WITHIN TREE DRIP LINES SHALL BE PROHIBITED UNLESS AUTHORIZED BY OWNER'S REPRESENTATIVE.

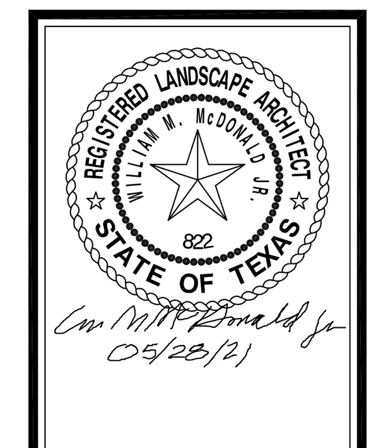
9 TREE PROTECTION
NOT TO SCALE



NOTES:
1. OBTAIN APPROVAL FROM OWNER'S REPRESENTATIVE BEFORE INSTALLING ALTERNAIVE TREE PROTECTIVE FENCING.

10 ALTERNATE TREE PROTECTION
NOT TO SCALE

TEXAS PARKS & WILDLIFE



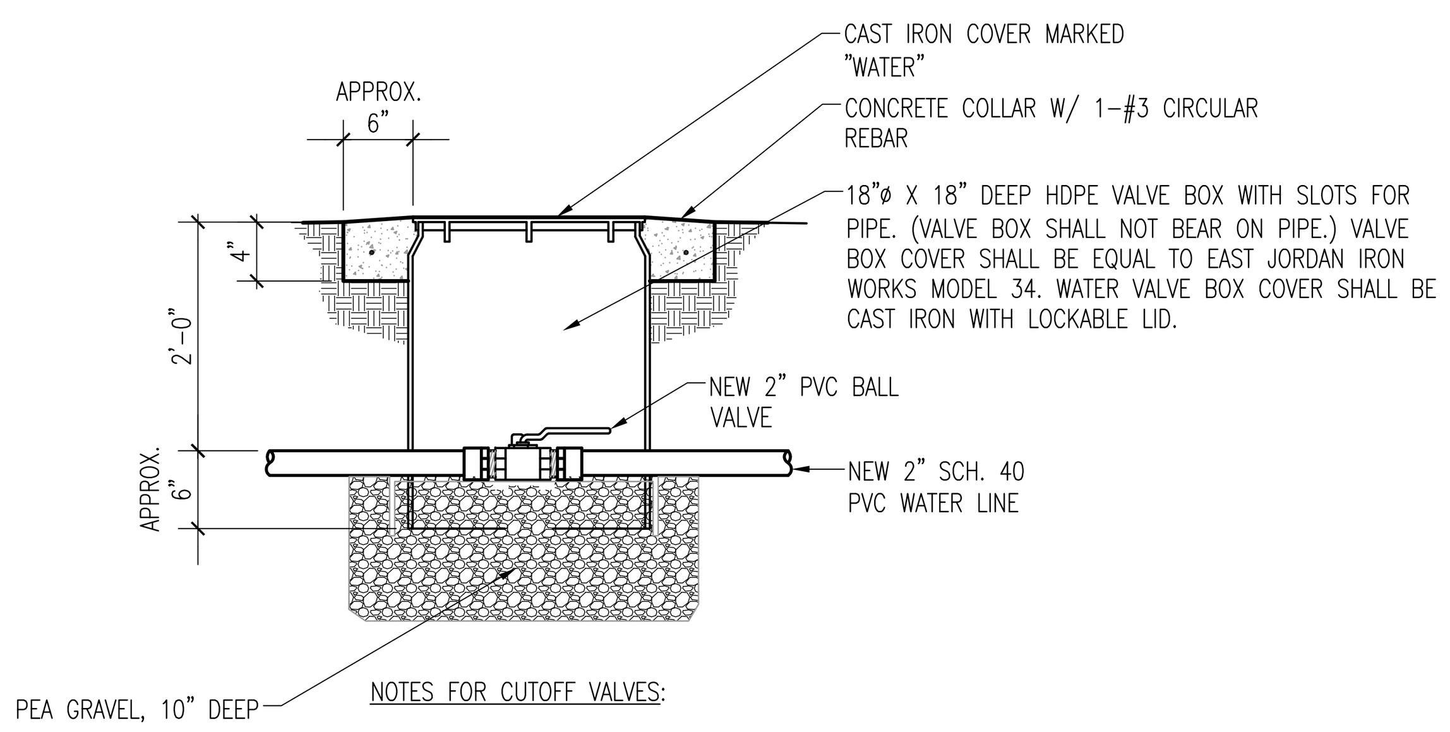
LAKE SOMERVILLE NAILS CREEK STATE PARK
REPLACE RESTROOM
PROJECT NUMBER: 1211045

DATE: 05-28-2021
DESIGNED BY: BMc
DRAWN BY: BMc
REVIEWED BY:
REVISED:
REVISED:
REVISED:

SHEET TITLE
SITE DETAILS

SHEET NUMBER
L3
OF

PATH: C:\Users\wmcdonal\Documents\Facilities\lsom-nc_p121\1211045_Replace Restroom\acad\1211045_L sheets.dwg

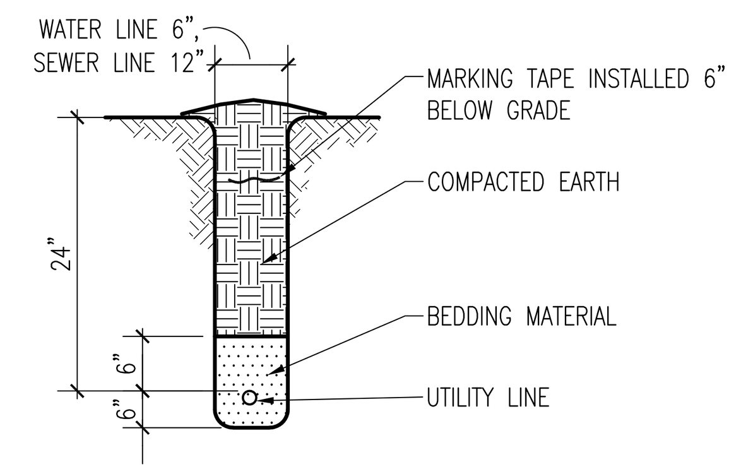


NOTES FOR CUTOFF VALVES:

1. ON VALVE BOXES, USE BRICKS TO SUPPORT VALVE BOXES ABOVE WATER LINES. DO NOT LET VALVE BOXES OR SUPPORT BRICKS REST ON WATER LINES.
2. CONCRETE FOR CONCRETE COLLAR SHALL HAVE A MINIMUM 3000 PSI STRENGTH.
3. SLOPE THE NEW WATER LINE UP NEAR THE CUTOFF VALVE BOX SO THAT THE WATER VALVE IS APPROXIMATELY 18" BELOW THE TOP OF THE VALVE BOX.
4. ORIENT THE VALVE IN THE VALVE BOX SO THAT THE BALL VALVE HANDLE CAN BE EASILY OPERATED WITHOUT INTERFERENCE WITH THE SIDES OF THE VALVE BOX.

1 PLUMBING VALVE AND VALVE BOX DETAIL

SCALE: 3/4"=1'-0"



TRENCHING NOTES

THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS TOOLS AND EQUIPMENT NECESSARY TO ACCOMPLISH THE REQUIRED TRENCHING FOR THE PROJECT. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES PRIOR TO STARTING EXCAVATION. COSTS OF REPAIRING DAMAGE TO EXISTING UNDERGROUND UTILITIES OR FACILITIES SHALL BE BORNE BY THE CONTRACTOR.

TRENCHES SHALL BE EXCAVATED TO THE DEPTHS SHOWN ON THESE DETAILS AND LINES PLACED AS SHOWN ON THESE DETAILS. THE WIDTH OF ANY TRENCHES SHALL BE BETWEEN SIX AND TWELVE INCHES.

BEDDING MATERIAL SHALL BE BEDDED AROUND ALL WATER LINES. BEDDING MATERIAL SHALL BE SAND OR OTHER SUITABLE BEDDING MATERIAL THAT PASSES A 3/8" SIEVE TEST. THE COMPACTED EARTH FILL MATERIAL SHALL BE FREE OF MUD, CLAY LUMPS, VEGETATION, DEBRIS AND ROCKS EXCEEDING 4" IN IN THEIR GREATEST DIMENSION. THE "FINES" RESULTING FROM THE USE OF A TRENCHING MACHINE MAY ONLY BE USED AS COMPACTED EARTH BACKFILL UNLESS SPECIFICALLY APPROVED BY THE TPWD ENGINEER.

THE BEDDING MATERIAL SHALL BE WATER-TAMPED AROUND ALL LINES BY FLOODING THE TRENCH WITH WATER AND ALLOWING THE MATERIAL TO SETTLE IN AS THE WATER RECEDES AND IS ABSORBED. AFTER THIS FLOODING THE BEDDING MATERIAL DEPTHS ABOVE AND BELOW THE LINES SHALL STILL ADHERE TO THE DETAIL DIMENSIONS.

THE COMPACTED EARTH BACKFILL SHALL BE COMPACTED IN 6" LIFTS. HAND TAMPING SHALL BE DONE WITH A MECHANICAL TAMPER. THE TOP OF THE BACKFILLED TRENCH SHALL BE SLIGHTLY MOUNDED ABOVE THE SURROUNDING GRADE TO ALLOW FOR SETTLEMENT.

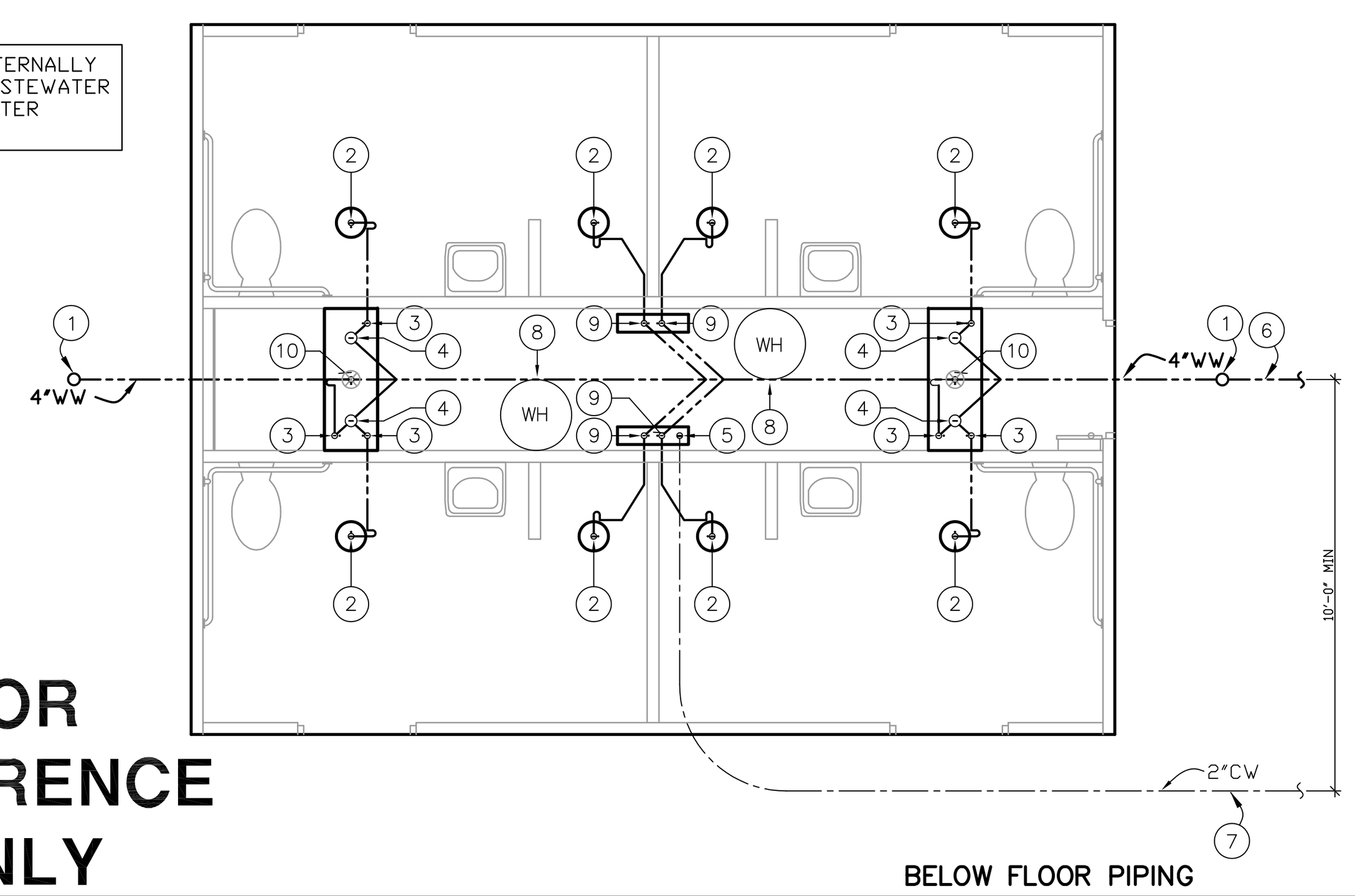
INSTALL DETECTABLE ELECTRICAL MARKING TAPE 6" BELOW GRADE IN TRENCH AS DETAILED.

2 PLUMBING TRENCHING DETAILS & NOTES

SCALE: N.T.S.

ALL PIPING INDICATED ON THIS SHEET IS NOT BY CXT

CXT IS PREPLUMBED INTERNALLY FOR CONNECTION TO WASTEWATER AND DOMESTIC COLD WATER CONNECTIONS.



FOR REFERENCE ONLY

BELOW FLOOR PIPING

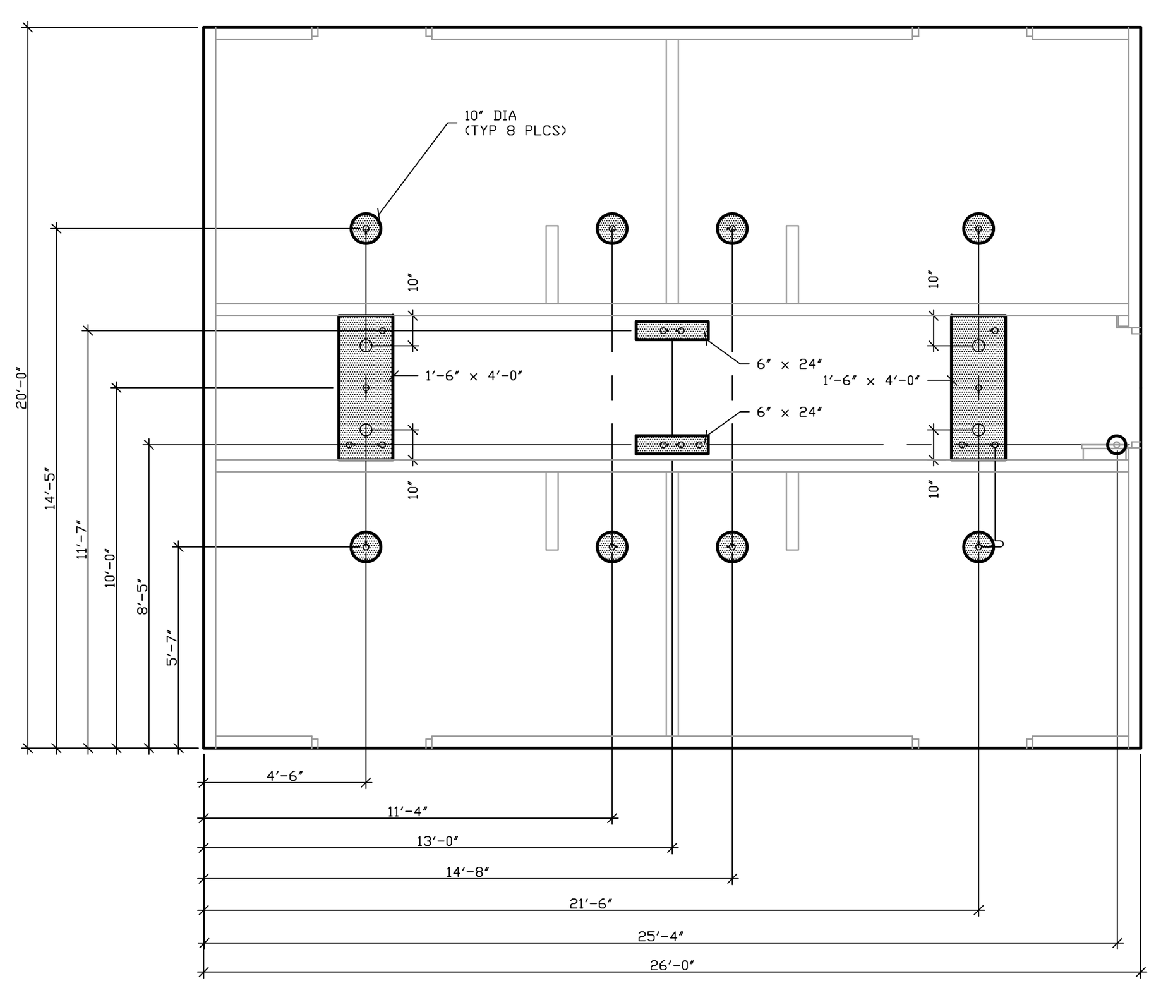
BELOW FLOOR PIPING - KEY NOTES

1. 4" CLEAN OUT (CO) TO GRADE.
2. 2" FLOOR DRAIN (FD) WITH FIELD INSTALLED TRAP PRIMER SYSTEM IF REQUIRED BY AUTHORITY HAVING JURISDICTION. (10"DIA BLOCKOUT)
3. 2" VENT PIPES EXTENDED 12" ABOVE FINISHED FLOOR LEVEL, PROVIDE TEST PLUG. (1'-6" x 4'-0" BLOCKOUT)
4. 4" WASTEWATER (WW) PIPE EXTENDED 12" ABOVE FINISHED FLOOR LEVEL, PROVIDE TEST PLUG. (1'-6" x 4'-0" BLOCKOUT)
5. 2" TYPE K ANNEALED "SOFT" COPPER DOMESTIC COLD WATER SERVICE EXTENDED 12" ABOVE FINISHED FLOOR LEVEL, PROVIDE CAP AT END. (6" x 2'-0" BLOCKOUT)
6. 30" MIN. BURY, PROVIDE TRACER TAPE.
7. 4'-6" MIN. BURY.
8. ELECTRIC WATER HEATER (WH): AO SMITH MODEL DEN-80, 80 GALLON, 4500W ELEMENT WITH NON-SIMULTANEOUS OPERATION.
9. 2" VENT PIPES EXTENDED 12" ABOVE FINISHED FLOOR LEVEL, PROVIDE TEST PLUG. (6" x 2'-0" BLOCKOUT)
10. 2" FLOOR DRAIN (FD) WITH FIELD INSTALLED TRAP PRIMER SYSTEM IF REQUIRED BY AUTHORITY HAVING JURISDICTION. (1'-6" x 4'-0" BLOCKOUT)

PIPING LEGEND

Line	Description
—·—·—	BELOW FLOOR WASTEWATER & VENT PIPING SCH 40 ABS
—·—	2" TYPE "K" ANNEALED "SOFT" COPPER DOMESTIC COLD WATER SERVICE

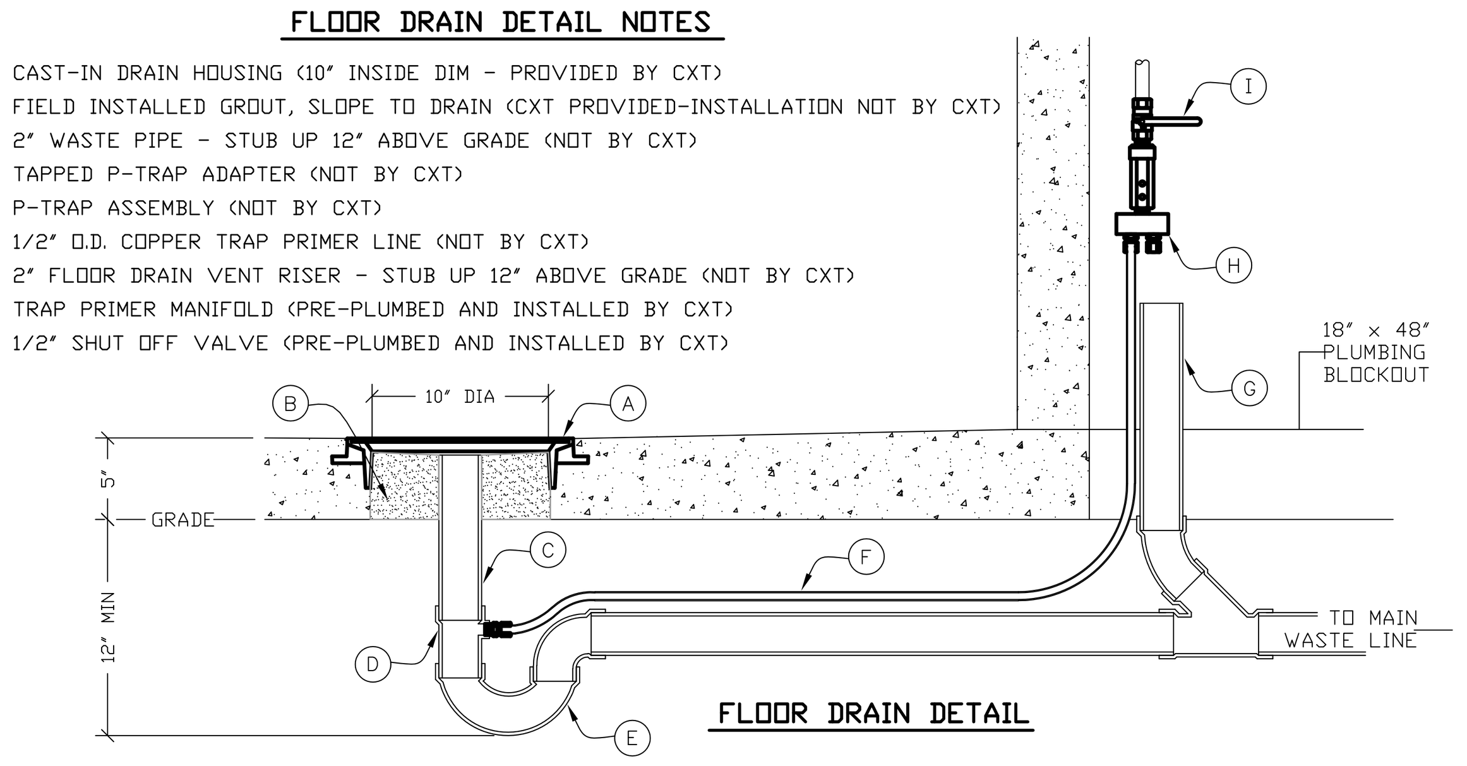
THIS DRAWING IS SUPPLIED FOR REFERENCE ONLY. PLEASE CONTACT CXT ENGINEERING DEPARTMENT FOR BUILDING SPECIFIC CONTROLLED DOCUMENTS PRIOR TO ANY FIELD WORK.



FLOOR BLOCKOUT SIZE AND LOCATIONS

FLOOR DRAIN DETAIL NOTES

A. CAST-IN DRAIN HOUSING (10" INSIDE DIM - PROVIDED BY CXT)
B. FIELD INSTALLED GROUT, SLOPE TO DRAIN (CXT PROVIDED-INSTALLATION NOT BY CXT)
C. 2" WASTE PIPE - STUB UP 12" ABOVE GRADE (NOT BY CXT)
D. TAPPED P-TRAP ADAPTER (NOT BY CXT)
E. P-TRAP ASSEMBLY (NOT BY CXT)
F. 1/2" O.D. COPPER TRAP PRIMER LINE (NOT BY CXT)
G. 2" FLOOR DRAIN VENT RISER - STUB UP 12" ABOVE GRADE (NOT BY CXT)
H. TRAP PRIMER MANIFOLD (PRE-PLUMBED AND INSTALLED BY CXT)
I. 1/2" SHUT OFF VALVE (PRE-PLUMBED AND INSTALLED BY CXT)



FLOOR DRAIN DETAIL

3808 N. Sullivan Bldg. #7 Spokane, WA 99216

CXT Precast Products

901 N. Highway 77 Hillsboro, TX 76645

PROJECT TITLE: NAVAJO FLUSH / SHOWER CXT STANDARD BUILDING

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CXT Incorporated

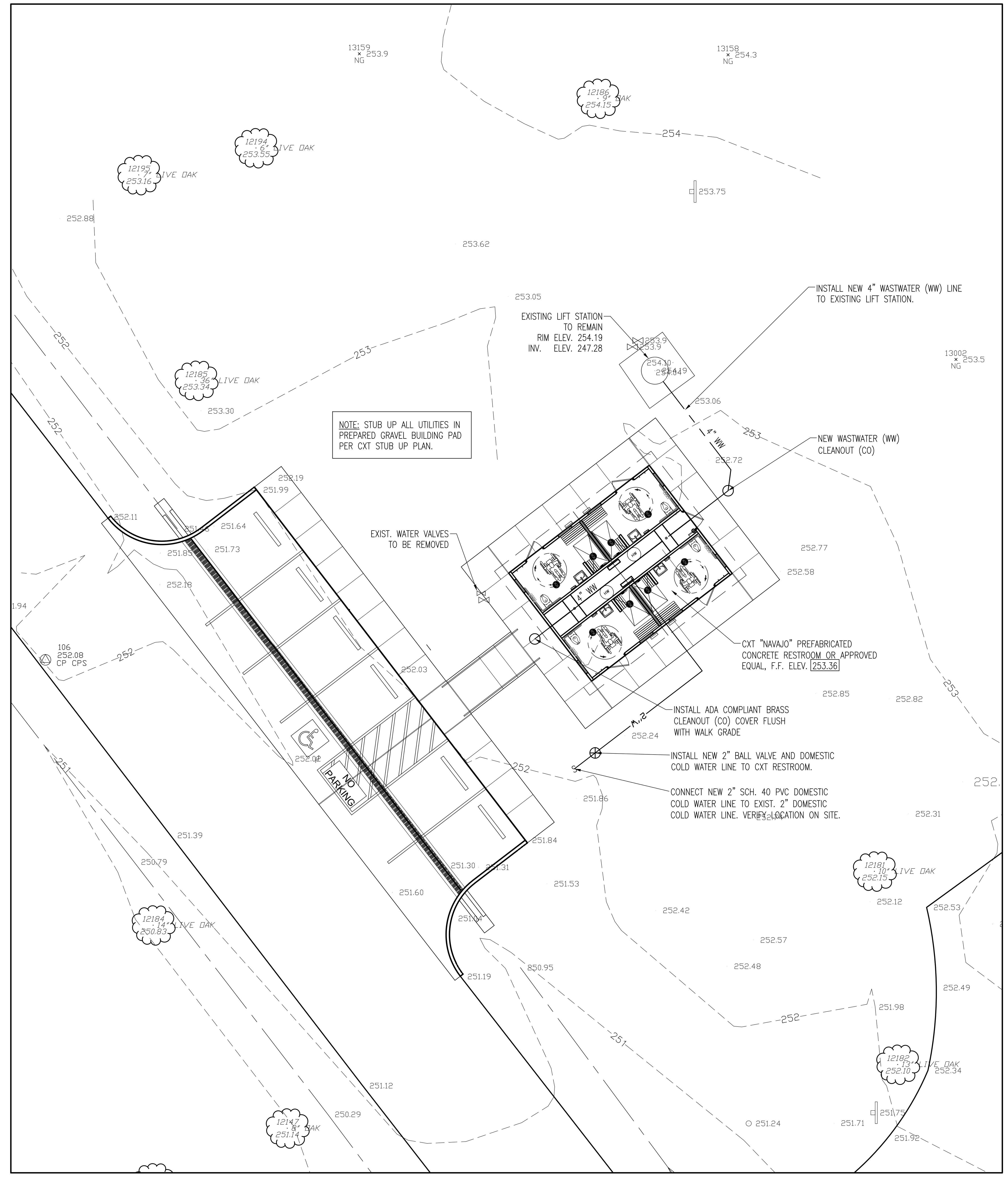
SCALE	3/16"=1'-0"	DATE	04-30-16
DRAWN		FILE NO.	FOR REF
CHECKED		PLOT	64

FLOOR DRAIN LOCATIONS & BELOW FLOOR PIPING

DWG NO. N-27 SHEET REV.

3 PLUMBING STUB UP PLAN

SCALE: 3/16"=1'-0"



NORTH

UTILITY NOTES:

1. TPWD CONTRACTOR SHALL CONNECT EXISTING SEWER AND WATER UTILITY SERVICES TO THE NEW RESTROOM.
2. UTILITY CONNECTIONS TO EXISTING BUILDING SHALL BE DISCONNECTED, CAPPED, AND ABANDONED AT POINT OF CONNECTION.
3. UTILITY CONNECTIONS SHALL MEET ALL APPLICABLE PLUMBING CODES (IPC).
4. VERIFY POINT OF CONNECTION TO EXISTING UTILITIES ON SITE.

4 PLUMBING PARTIAL SITE PLAN

SCALE: 1"=10'-0"

Symbol	Description	Symbol	Description
(hatch)	DEMO AREA	TP	TREE PROTECTION FENCING
— 253 —	EXISTING CONTOUR	253	FINISH GRADE CONTOUR
12185 36" LIVE OAK 253.34	EXISTING TREE TO REMAIN	2"CW	NEW 2" SCH. 40 PVC DOMESTIC COLD WATER LINE
253.43	FINISH SPOT GRADE	4"WW	NEW 4" WASTEWATER LINE
		(crosshatch)	SOLID SOD 609 BUFFALO GRASS

LEGEND

TEXAS PARKS & WILDLIFE

STATE OF TEXAS
STEPHEN HERRERA
91832
LICENSED PROFESSIONAL ENGINEER
5/28/2021

LAKE SOMERVILLS NAIL CREEK STATE PARK

REPLACE RESTROOM

PROJECT NUMBER: 1211045

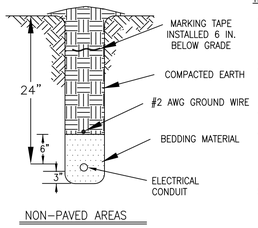
DATE: 05-28-2021
DESIGNED BY: SWH
DRAWN BY: SWH
REVIEWED BY: SWH
REVISED:
REVISED:
REVISED:

SHEET TITLE
PLUMBING FLOOR & PARTIAL SITE PLAN DETAILS & NOTES

SHEET NUMBER
P1
OF

PATH: C:\Users\sherrera\Documents\Infrastructure\Projects\Lake Somerville\Nails\RestroomReplace 1211045\Design\1211045_Psheets.dwg

TRENCHING NOTES

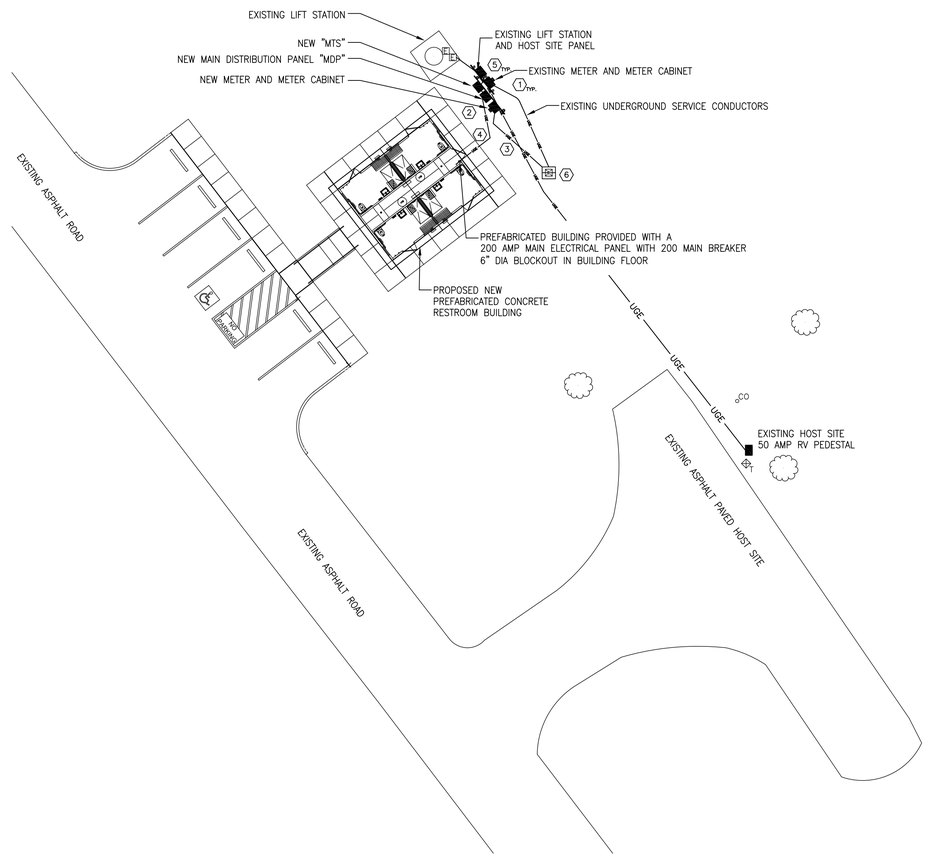


NON–PAVED AREAS

1. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS TOOLS AND EQUIPMENT NECESSARY TO ACCOMPLISH THE REQUIRED TRENCHING. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES PRIOR TO STARTING EXCAVATION. COSTS OF REPAIRING DAMAGE TO EXISTING UNDERGROUND UTILITIES OR FACILITIES SHALL BE BORNE BY THE CONTRACTOR. CONTRACTOR SHALL CALL 811 BEFORE YOU DIG, TO ASSIST IN AVOIDING EXISTING UNDERGROUND UTILITIES.
2. TRENCHES SHALL BE EXCAVATED TO THE DEPTHS AND LINES PLACED AS SHOWN ON THESE DETAILS. THE WIDTH OF ANY TRENCHES SHALL BE BETWEEN SIX AND TWELVE INCHES. WHERE ROOTS OR STUMPS ARE ENCOUNTERED THEY SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR. LARGE ROOTS SHALL BE CUT OFF FLUSH WITH THE SIDES OF THE TRENCH.
3. THE CONTRACTOR SHALL STAKE EACH PROPOSED ROUTE IN ADVANCE.
4. BEDDING MATERIAL SHALL BE BEDDED AROUND ALL CONDUITS & WATER LINES. THE BEDDING MATERIAL SHALL BE A NATIVE SAND OR OTHER SUITABLE NATIVE BEDDING MATERIAL THAT PASSES A 3/8" SIEVE TEST. THE COMPACTED EARTH FILL MATERIAL SHALL BE FREE OF MUD, CLAY LUMPS, VEGETATION, DEBRIS AND ROCKS EXCEEDING 6" IN IN THEIR GREATEST DIMENSION. THE "FINES" RESULTING FROM THE USE OF A TRENCHING MACHINE MAY ONLY BE USED AS COMPACTED EARTH BACKFILL UNLESS SPECIFICALLY APPROVED BY THE TPWD ENGINEER.
5. THE BEDDING MATERIAL SHALL BE WATER–TAMPED AROUND ALL LINES BY FLOODING THE TRENCH WITH WATER AND ALLOWING THE MATERIAL TO SETTLE IN AS THE WATER RECEDES AND IS ABSORBED. AFTER THIS FLOODING THE BEDDING MATERIAL DEPTHS ABOVE AND BELOW THE LINES SHALL STILL ADHERE TO THE DETAIL DIMENSIONS. THE COMPACTED EARTH BACKFILL SHALL BE COMPACTED IN 6" LIFTS. HAND TAMPING SHALL BE DONE WITH A MECHANICAL TAMPER. THE TOP OF THE BACKFILLED TRENCH SHALL BE SLIGHTLY MOUNDED ABOVE THE SURROUNDING GRADE TO ALLOW FOR SETTLEMENT.
6. ELECTRICAL MARKING TAPE SHALL BE BURIED AT THE DEPTHS SHOWN IN TRENCHES CARRYING ELECTRIC CONDUIT.
7. WHERE MORE THAN ONE CONDUIT IS INSTALLED IN A TRENCH, THE CONDUITS SHALL BE SEPARATED BY A MINIMUM OF 2" OF BEDDING MATERIAL AND THE TRENCH DEPTH SHALL BE ADJUSTED AS NECESSARY TO ACCOMMODATE MULTIPLE CONDUITS.
8. CONTRACTOR SHALL TRENCH UNDER ALL KNOWN UNDERGROUND UTILITIES CROSSINGS BY HAND WITHOUT DAMAGING EXISTING PIPES AND CONDUITS. CONTRACTOR SHALL INSTALL CONDUITS UNDER THE EXISTING PIPING TO MEET MINIMUM COVER. CONTRACTOR SHALL FIELD INVESTIGATE PRIOR TO PLACING BID.
9. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS TOOLS AND EQUIPMENT NECESSARY TO ACCOMPLISH THE REQUIRED EXCAVATION AND TRENCHING. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES PRIOR TO STARTING EXCAVATION OR TRENCHING. COSTS OF REPAIRING DAMAGE TO EXISTING UNDERGROUND UTILITIES OR FACILITIES SHALL BE REPAIRED AT CONTRACTORS EXPENSE. CONTRACTOR IS ENCOURAGED TO CALL 811 DIG PRIOR TO COMMENCING ANY WORK.
10. TRENCHES SHALL BE EXCAVATED TO THE DEPTHS AND LINES PLACED AS SHOWN ON THESE DETAILS. THE WIDTH OF ANY TRENCHES SHALL BE BETWEEN SIX AND TWELVE INCHES. WHERE ROOTS OR STUMPS ARE ENCOUNTERED THEY SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR. LARGE ROOTS 3 INCHES IN DIAMETER AND LARGER SHALL REQUIRE OWNERS PERMISSION TO CUT. THE CONTRACTOR SHALL STAKE EACH PROPOSED ROUTE FOR OWNERS REPRESENTATIVE FINAL APPROVAL PRIOR TO TRENCHING OR BORING. IT IS PROHIBITED TO CUT EXISTING PAVEMENT OR CONCRETE IN THIS PROJECT THAT IS TO REMAIN, UNLESS OTHERWISE DIRECTED.
11. TRASH AND DEBRIS SHALL BE REMOVED FROM THE PARK PROPERTY.

1 TRENCHING & EXCAVATION DETAILS & NOTES-ELECTRICAL

SCALE: NOT TO SCALE



NORTH

2 ELECTRICAL PARTIAL SITE PLAN

SCALE: 1/16" = 1'-0"

ELECTRICAL SITE PLAN KEYED NOTES -

1. PROVIDE A NEW UNDERGROUND SERVICE FROM THE EXISTING PAD MOUNTED TRANSFORMER. CONTRACTOR SHALL PROVIDE A NEW UNDERGROUND SECONDARY AND ESTABLISH A NEW SERVICE PER THE UTILITY PROVIDER'S PUBLISHED REQUIREMENTS. THE CONTRACTOR SHALL COORDINATE WITH BLUE BONNET ELECTRIC PRIOR TO COMMENCING WORK OR ORDERING ELECTRICAL EQUIPMENT. BLUE BONNET ELECTRIC WILL PROVIDE THE TERMINATIONS TO THE TRANSFORMER. THE CONTRACTOR SHALL MAINTAIN THE UTILITY CLEARANCE REQUIREMENTS AND FURNISH AND INSTALL ALL ITEMS SHOWN IN THE PROJECT WITH EXCEPTION TO THE ACTUAL SERVICE CONDUCTOR TERMINATIONS ON THE SECONDARY SIDE AT THE TRANSFORMER. THE OWNER SHALL PAY THE UTILITY PROVIDER FOR ALL ASSOCIATED FEES. THE CONTRACTOR SHALL CONTACT AND COORDINATE WITH UTILITY PROVIDERS. POINT OF CONTACT AND OWNER DESIGNATED REPRESENTATIVE. THE POINT OF CONTACT FOR BLUE BONNET ELECTRIC IS TIM GRAHAM 979–540–7072.
2. PROVIDE A RACK MOUNTED NEW MAIN SERVICE DISTRIBUTION LOAD CENTER "MDP" AND METER CABINET. SEE ONE–LINE RISER DIAGRAM ON SHEET E2/DETAIL#1.
3. PROVIDE A NEW 2" CONDUIT IN TRENCH FROM EXISTING PAD MOUNTED TRANSFORMER TO PROPOSED NEW UNDERGROUND SERVICE METER CABINET.
4. PROVIDE A NEW 2" CONDUIT IN TRENCH FROM FEED THRU LUGS ON NEW SERVICE RATED LOAD CENTER "MDP" TO PROPOSED NEW MODULAR BUILDING SUB–PANEL. CONTRACTOR SHALL INSTALL NEW BACKFED MAIN BREAKER, SEE SHEET E2/DETAIL#1. COORDINATE UNDERGROUND ELECTRICAL CONDUITS WITH THE SANITARY SEWER WASTEWATER DRAIN LINES. SEPTIC TAKES PRECEDENT.
5. FOR THE DURATION OF CONSTRUCTION THE EXISTING SERVICE SHALL REMAIN ENERGIZED TO SERVE THE EXISTING LIFT STATION, TEMPORARY ROLL UP RESTROOM AND BATHHOUSE. THE RV HOST SITE SHALL BE DISCONNECTED DURING CONSTRUCTION. AT SUBSTANTIAL COMPLETION THE CONTRACTOR SHALL DEMOLISH THE EXISTING METER CABINET AND SERVICE CONDUCTORS. THE CONTRACTOR SHALL BACK FEED THE EXISTING PANEL FROM THE NEW ELECTRICAL SERVICE PANEL TO RESTORE ELECTRICAL POWER AND MINIMIZE THE ELECTRICAL SHUT DOWNS AND MAINTAIN PARK OPERATIONS. THE CONTRACTOR SHALL RE–TERMINATE AND RE–TORQUE THE EXISTING CONDUCTOR IN THE EXISTING "LSHS" LOAD CENTER AND FILL ANY REMAINING UNUSED KNOCK OUTS. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL COORDINATION EFFORTS WITH THE UTILITY PROVIDER AND DESIGNATED OWNER REPRESENTATIVE TO PROVIDE ADVANCE NOTICE AND COORDINATION AND TO MINIMIZE THE ELECTRICAL SHUT DOWNS AND DISRUPTIONS TO THE PARK OPERATIONS, INCLUDING BUT NOT LIMITED TO RESTROOM AND BATHING FOR PARK GUEST. THE CONTRACTOR SHALL FENCE OFF ALL AREAS OF CONSTRUCTION TO MAINTAIN A SAFE WORKING ENVIRONMENT WITH SEPARATION FROM PARK GUEST CONSTRUCTION.
6. EXISTING TRANSFORMER TO REMAIN IN SERVICE.

APPLIES TO ALL ELECTRICAL SHEETS
GENERAL NOTES

1. ALL EQUIPMENT, DEVICES, CONDUCTORS AND RACEWAYS, PRODUCTS AND DELIVERABLES ITEMS FOR THE PROJECT SHALL BE UNUSED, NEW AND RECENTLY PURCHASED.
2. THE LOCATION OF ELECTRICAL ITEMS ON THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND ARE NOT INTENDED TO GIVE COMPLETE AND ACCURATE DETAILS IN REGARD TO LOCATION. EXACT LOCATION SHOULD BE DETERMINED BY ACTUAL MEASUREMENTS ON SITE, AND WILL IN ALL CASES BE SUBJECT TO THE APPROVAL OF THE ENGINEER. THE ENGINEER RESERVES THE RIGHT TO MAKE ANY REASONABLE CHANGES IN THE LOCATIONS INDICATED WITHOUT ADDITIONAL COST. THE CONTRACTOR SHALL REPAIR ALL DAMAGES CREATED TO THE SITE DUE TO CONSTRUCTION. ALL REPAIRS SHALL BE MADE TO MATCH THE PRE–CONSTRUCTION CONDITIONS. IF THE CONSTRUCTION PLANS ARE NOT CLEAR OR A CONTRADICTION EXIST THE CONTRACTOR SHALL REQUEST ADDITIONAL WRITTEN DIRECTION IN ADVANCE PRIOR TO PROCEEDING WITH CONSTRUCTION.
3. CONFLICTING REQUIREMENTS: WHERE COMPLIANCE WITH WITH TWO OR MORE STANDARDS OR REQUIREMENTS IS SPECIFIED, AND THEY ESTABLISH DIFFERENT OR CONFLICTING REQUIREMENTS FOR MINIMUM QUANTITIES OR QUALITY LEVELS, THE MOST STRINGENT AND GREATER VALUE REQUIREMENT WILL BE ENFORCED. SUBMIT A REQUEST FOR INFORMATION IF THE BID DOCUMENTS CONFLICT OR CREATE UNCERTAINTIES AS TO WHICH QUALITY LEVEL IS MORE STRINGENT TO THE ENGINEER OF RECORD FOR A DECISION BEFORE PROCEEDING.
4. ALL CONDUITS SHALL RUN PARALLEL AND PERPENDICULAR TO THE FOLLOW THE BUILDING LINES. PROVIDE KNOCKOUT SEALS ON ALL UNUSED EMPTY CONDUIT ENTRIES TO ALL EXISTING AND NEW JUNCTION BOXES AND ENCLOSURES. ALL RACEWAYS SHALL BE SECURED AND SUPPORTED. PROVIDE PULL BOXES AS REQUIRED NOT TO EXCEED 270 DEGREES IN BENDS. PROVIDE FACE PLATES COVER UP PLATES FOR ALL EXISTING AND NEW JUNCTION BOXES.
5. THE ELECTRICAL DISTRIBUTION SYSTEM SIZING IS BASED ON EQUIPMENT DATA FROM THE SPECIFIED SUPPLIER OR A TYPICAL SUPPLIER. THE CONTRACTOR IS FULLY RESPONSIBLE FOR PROVIDING THE CORRECTLY SIZED ELECTRICAL SYSTEM TO MATCH THE REQUIREMENTS OF THE NEW EQUIPMENT.
6. THE ELECTRICAL SYSTEM SHALL BE GROUNDED IN ACCORDANCE WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE. ALL ELECTRICAL SYSTEMS RECEPTACLES, CABINETS, JUNCTION BOXES, MOTOR FRAMES, MISCELLANEOUS EQUIPMENT, ETC. SHALL BE GROUNDED BY A GREEN–WIRE GROUND CONDUCTOR.
7. DO NOT SPLICE CONDUCTORS, UNLESS OTHERWISE NOTED.
8. WHERE CALLED FOR, USE 2 OR 3 POLE BREAKERS. TYING SINGLE POLE BREAKERS TOGETHER TO CREATE A 2 OR 3 POLE BREAKER IS PROHIBITED. THE USE OF TANDEM BREAKERS IN LOAD CENTERS IS PROHIBITED.
9. THE BIDDER SHALL VISIT THE SITE OF THE PROPOSED WORK AND SHALL FULLY INFORM HIMSELF REGARDING THE FACILITIES. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR WORK OR MATERIALS OMITTED FROM BIDDER'S CONTRACT PROPOSAL DUE TO HIS FAILURE TO INFORM HIMSELF BY SUCH INVESTIGATION.
10. THE ELECTRICAL CONTRACTOR SHALL GUARANTEE AGAINST DEFECTS IN ANY OR ALL MATERIALS, EQUIPMENT, OR WORKMANSHIP COVERED BY THE ELECTRICAL SPECIFICATIONS, EXCEPT SUCH MATERIALS, EQUIPMENT, OR WORKMANSHIP FURNISHED BY OTHERS AND SHALL MAKE GOOD, REPAIR, OR REPLACE, AT HIS OWN EXPENSE, ANY DEFECTIVE WORK, MATERIAL OR PART WHICH MAY BECOME EVIDENT WITHIN A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE OF THE WORK. NECESSARY SERVICE AND ADJUSTMENT DURING THE EARLY STAGES OF OPERATION AFTER OCCUPANCY SHALL BE PROVIDED BY THE CONTRACTOR WITHOUT ADDITIONAL COST TO THE OWNER.
11. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS TOOLS AND EQUIPMENT NECESSARY TO ACCOMPLISH THE REQUIRED EXCAVATION AND TRENCHING. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES PRIOR TO STARTING EXCAVATION OR TRENCHING. COSTS OF REPAIRING DAMAGE TO EXISTING UNDERGROUND UTILITIES OR FACILITIES SHALL BE REPAIRED AT CONTRACTORS EXPENSE.
12. ALL LIGHT FIXTURES, RACEWAYS, CONDUIT FITTINGS AND ENCLOSURES LOCATED OUTDOORS AND IN DAMP LOCATIONS INCLUDING BUT NOT LIMITED T O PULL BOXES, LOAD CENTERS, ENCLOSED BREAKERS, WIRE WAYS AND GUTTERS SHALL BEAR A UL LISTED WEATHER RATED OR WET LISTED LABEL.
13. THE CONTRACTOR SHALL DISPOSE OF ALL DEMOLISHED ITEMS OFFSITE.
14. PROVIDE NEW LABELS FOR ALL BRANCH CIRCUITS AND ALL DISCONNECTS, ELECTRICAL DEVICES AND PANEL SCHEDULES TO MATCH ASBUILT CONDITIONS.
15. ALL ADJACENT BUILDINGS, STRUCTURES, PARKING LOTS, STREET PAVEMENTS, UTILITY LINES, SITE UTILITIES, UTILITY STRUCTURES, TREES, PLANTINGS, AND APPURTENANCES OTHER THAN SHOWN FOR REPLACEMENT SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION. IF DAMAGE OCCURS, THE CONTRACTOR SHALL RESTORE THE DAMAGE TO PRIOR CONDITIONS AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR SHALL COORDINATE WITH CALL BEFORE YOU DIG TEXAS 811.
16. THE SITE WILL REMAIN OPEN TO THE PUBLIC DURING THE COURSE OF CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROTECT AND SECURE THE CONSTRUCTION AREAS AND EQUIPMENT, AND TO ENSURE THAT ALL CONSTRUCTION ACCESS AND STORAGE IS LIMITED TO THE AREAS AGREED UPON WITH THE DESIGNATED OWNER REPRESENTATIVE.
17. EARTHWORK MATERIALS BROUGHT INTO THE PARK FROM OUTSIDE OF THE PARK IS NOT PERMISSIBLE. ALL EARTHWORK OPERATIONS SHALL ONLY BE PLACED OR STORED ON PAVED SURFACES OR OTHER AREAS APPROVED BY TPWD PERSONNEL. ANY EXCESS SOIL AND TOPSOIL FROM EARTHWORK OPERATIONS THAT IS NOT NEEDED IN THE PARK SHALL BE DISPOSED OF AT AN OFFSITE LOCATION BY THE CONTRACTOR. CONTRACTOR SHALL SET ASIDE THE FIRST 12 INCHES OF TOP SOIL TO BE USED AS BACKFILL TO ACCOMPLISH FINISH GRADES. ALL DEEPER SOILS EXCAVATED SHOULD BE PLACED BACK IN THE OPEN TRENCH OR PIT FIRST TO SUPPORT NATIVE NATURAL REVEGETATION. OFF SITE/IMPORTED BACKFILL MATERIALS ARE PROHIBITED.
18. SUBMIT FOR REVIEW FINAL ASBUILT DRAWINGS TO REFLECT ALL MODIFICATIONS TO THE EXISTING AND PROPOSED ELECTRICAL SHEETS.
19. ALL DUPLEX/QUAD OUTLETS SHALL BE MOUNTED AS INDICATED ON DRAWING, TO CENTER OF OUTLET. GROUND TERMINAL SHALL POINT DOWN. MOUNT 44" A.F.F. UNLESS OTHERWISE NOTED.
20. TRASH AND DEBRIS SHALL BE REMOVED FROM THE PARK PROPERTY.
21. PROVIDE EXOTHERMIC WELDS ON ALL GROUNDING ELECTRODE CONNECTIONS.
22. PROVIDE GROUNDING BUSHINGS ON ALL UNDERGROUND CIRCUITS AND SERVICE ENTRANCE ENTRANCE CONDUCTORS, AND TECHNOLOGY CONDUITS. ALL OTHER CONDUIT ENTRIES SHALL BE PROVIDED WITH PLASTIC NYLON BUSHING INSULATORS.

CONTRACTOR SHALL CORDINATE WITH OTHER TRADES TO ENSURE CONDUIT STUB UPS ARE IN PLACE PRIOR TO FINAL PLACEMENT OF THE PROPOSED RESTROOM BUILDING

SEE SHEET E3 FOR SPECIFICATIONS AND ELECTRICAL SUBMITTAL LIST

SEE SHEET E2 FOR SYMBOLS SCHEDULES, DETAILS, SPECIFICATIONS AND ONE-LINE DIAGRAMS

TEXAS PARKS & WILDLIFE

STATE OF TEXAS
CARL OWEN NIX
93674
REGISTERED PROFESSIONAL ENGINEER
5/28/2021

CONSTRUCTION DRAWINGS

LAKE SOMERVILLS NAIL CREEK STATE PARK
REPLACE RESTROOM
PROJECT: 1211045

DATE: 5–28–2021
DESIGNED BY: CN
DRAWN BY: CN
REVIEWED BY: CN
REVISED:
REVISED:
REVISED:

SHEET TITLE
ELECTRICAL PARTIAL SITE PLAN

SHEET NUMBER
E1

NEW SERVICE RATED PANEL "MDP" 200 MCB FEED W/ FEED THRU LUGS

SERVICE 240/120V, 1ø, 3 WIRE — AIC 22,000 — RAINPROOF

CONDUIT & WIRE	CRT#	BKR / P	ITEM DESCRIPTION	AMPS	A	B	AMPS	ITEM DESCRIPTION	BKR / P	CRT#	CONDUIT & WIRE
FEED THRU LUGS	1		PREFABRICATED BLDG.	72.5	146.5		74.0	"MTS" LOAD SERVES	100 / 2	2	
FEED THRU LUGS	3		"RRB" LOAD CENTER	54.0		128.0	74.0	EXISTING LSHS PANEL		4	
	5	20 / 2	UL LISTED SPD	0.0	0.0		0.0	SURGE	20 / 2	6	
	7		SPD TYPE 2	0.0		0.0	0.0	CAPACITOR		8	
	9	20 1	SERVICE RECEPTACLE	1.5	1.5		0.0	SPARE	20 / 1	10	
	11		NO ADDITIONAL	0.0		0.0	0.0			12	
	13			0.0	0.0		0.0			14	
	15			0.0		0.0	0.0			16	
	17			0.0	0.0		0.0			18	
	19			0.0		0.0	0.0			20	
	21			0.0	0.0		0.0			22	
	23			0.0		0.0	0.0			24	
	25			0.0	0.0		0.0			26	
	27			0.0		0.0	0.0			28	
	29			0.0	0.0		0.0			30	
	31			0.0		0.0	0.0			32	
	33			0.0	0.0		0.0			34	
	35			0.0		0.0	0.0			36	
	37			0.0	0.0		0.0			38	
	39			0.0		0.0	0.0			40	
	41			0.0	0.0		0.0			42	
					148.0	**128.0**					

* GFCI BREAKER

**PROVIDE A CIRCUIT BREAKER CAPABLE OF BEING LOCKED IN THE OPEN POSITION

CONTRACTOR SHALL SUPPLY APPROPRIATE FRAME RATING TO ACCOMMODATE FEEDER WIRE SIZE AND BRANCH CIRCUIT WIRES FOR ALL BEAKERS ON THIS PROJECT

EXISTING SERVICE PANEL TO REMAIN "LSHS" LOAD CENTER 125 A MLO

SERVICE 240/120V, 1ø, 3 WIRE — AIC 10,000 — RAINPROOF

CONDUIT & WIRE	CRT#	BKR / P	ITEM DESCRIPTION	AMPS	A	B	AMPS	ITEM DESCRIPTION	BKR / P	CRT#	CONDUIT & WIRE
	1	100 / 2	REPLACE EXISTING MCB	0.0	0.0		0.0	ADD BREAKER AND	20 / 2	2	
	3		BUSS BACKFED	0.0		0.0	0.0	SURGE CAPACITOR		4	
	5	20 / 2	ADD BREAKER AND	0.0	0.0		0.0	SPACE		6	
	7		UL LISTED SPD TYPE 2	0.0		0.0	0.0	SPACE		8	
	9		SPACE	0.0	24.0		24.0	EXISTING SEPTIC	50 / 2	10	
	11		SPACE	0.0		24.0	24.0	LIFT STATION		12	
	13	50	EXISTING HOST SITE	50.0	50.0		0.0	SPACE		14	
	15		50 AMP RV PEDESTAL	50.0		50.0	0.0	SPACE		16	
	17		SPACE	0.0	0.0		0.0	SPACE		18	
	19		SPACE	0.0		0.0	0.0	SPACE		20	
	21		SPACE'	0.0	0.0		0.0	SPACE		22	
	23		SPACE	0.0		0.0	0.0	SPACE		24	
	25		NO ADDITIONAL	0.0	0.0		0.0	NO ADDITIONAL		26	
	27		SPACES AVAILABLE	0.0		0.0	0.0	SPACES AVAILABLE		28	
	29			0.0	0.0		0.0			30	
	31			0.0		0.0	0.0			32	
	33			0.0	0.0		0.0			34	
	35			0.0		0.0	0.0			36	
	37			0.0	0.0		0.0			38	
	39			0.0		0.0	0.0			40	
	41			0.0	0.0		0.0			42	
					74.0	**74.0**					

* GFCI BREAKER

**PROVIDE A CIRCUIT BREAKER CAPABLE OF BEING LOCKED IN THE OPEN POSITION

CONTRACTOR SHALL SUPPLY APPROPRIATE FRAME RATING TO ACCOMMODATE FEEDER WIRE SIZE AND BRANCH CIRCUIT WIRES FOR ALL BEAKERS ON THIS PROJECT

PREFABRICTED BUILDING SUB-PANEL "RRB" 200 A MCB

SERVICE 240/120V, 1ø, 3 WIRE — AIC 10,000 — NEMA-1

CONDUIT & WIRE	CRT#	BKR / P	ITEM DESCRIPTION	AMPS	A	B	AMPS	ITEM DESCRIPTION	BKR / P	CRT#	CONDUIT & WIRE
	1		1,500 WATT HTR OUTLET	12.5	12.5		0.0	MAIN	200 / 2	2	1 - 2"C w/ 3-#3/0 + 1-#6(G)EA
	3		SPACE	0.0		0.0	0.0	BREAKER		4	
	5		RECEPTACLE	6.0	8.0		2.0	INT. LIGHTS		6	
	7		SPACE	0.0		2.0	2.0	EXT. LIGHTS		8	
	9		4,500 WATT SINGLE ELEMENT	19.0	20.0		1.0	EXHUAST FAN		10	
	11		WATER HEATER	19.0		20.0	1.0	EXHUAST FAN		12	
	13		4,500 WATT SINGLE ELEMENT	19.0	25.0		6.0	HAND DRYER		14	
	15		WATER HEATER	19.0		25.0	6.0	HAND DRYER		16	
	17		EXHAUST FAN	1.0	1.0		0.0	PROVIDE UL-LISTED	20 / 2	18	CONTRACTOR PROVIDED
	19		EXHAUST FAN	1.0		1.0	0.0	SPD TYPE-2		20	BREAKER
	21		HAND DRYER	6.0	6.0		0.0			22	
	23		HAND DRYER	6.0		6.0	0.0			24	
	25			0.0	0.0		0.0			26	
	27			0.0		0.0	0.0			28	
	29			0.0	0.0		0.0			30	
	31			0.0		0.0	0.0			32	
	33			0.0	0.0		0.0			34	
	35			0.0		0.0	0.0			36	
	37			0.0	0.0		0.0			38	
	39			0.0		0.0	0.0			40	
	41			0.0	0.0		0.0			42	
					72.5	**54.0**					

KEYED NOTE "⬡"

1. PROVIDE NEW NAMEPLATE LABELS FOR ALL NEW AND EXISTING ELECTRICAL PANELS, LOAD CENTERS AND DISCONNECTS. REFER TO ELECTRICAL PLAN SHEET E1 AND SHEET E2/ DETAIL#1 TO IDENTIFY ALL ELECTRICAL EQUIPMENT LOCATIONS.
2. CONTRACTOR PROVIDED UL-LISTED 200 AMP, 4-LUG UNDERGROUND SERVICE RINGLESS METER SOCKET AND CLASS 200 240V METER PER UTILITY REQUIREMENTS, MOUNT AT MAXIMUM HEIGHT ALLOWED PER UTILITY PROVIDER, NOT TO EXCEED 72 INCHES ABOVE GRADE. PROVIDE BARREL COPPER COMPRESSION LUGS. DO NOT BOND OR GROUND METER CABINET. DO NOT CROSS LINE AND LOAD SERVICE CONDUCTORS INSIDE CABINET. PROVIDE A SLIP METER RISER CONDUIT SERVICE ENTRY.
3. CONTRACTOR PROVIDED ELECTRICAL SERVICE RACK PER THE UTILITY PROVIDERS REQUIREMENTS. PROVIDE 2 QTY 2" GALVANIZED STEEL POST. SET EACH POST 30 INCHES DEEP IN 3,000 PSI SACKCRETE WRAP POST IN CONTACT WITH CONCRETE OR EARTH WITH SCOTCHWRAP 50. SPAN POST TO POST WITH 1-5/8" GALVANIZED STEEL CHANNEL STRUTS IN 3 PLACES TO SUPPORT ENCLOSURES AND CONDUITS REFER TO UTILITY PROVIDER FOR CHANNEL STRUT SPACING REQUIREMENTS. BOTTOM CHANNEL STRUT SHALL BE LOCATED 12 INCHES ABOVE FINISHED GRADE PER UTILITY REQUIREMENTS. GROUND SMOOTH AND PAINT CUTS WITH COLD GALVANIZING PAINT, 2" MAX EXTENSIONS. MOUNT THE DOUBLE THROW SWITCH AND LOAD CENTER ON THE BACKSIDE OF THE SERVICE RACK. THE TOTAL MAXIMUM WIDTH OF THE SERVICE RACK SHALL NOT EXCEED THE 60 INCHES WIDE, AND PER THE UTILITY PROVIDER REQUIREMENTS.
4. CONTRACTOR PROVIDED SERVICE RATED 200 AMP LOAD CENTER MANUFACTURED BY EATON WITH A FACTORY INSTALLED 200 AMP MAIN BREAKER 22KA INTERRUPTION RATING. PROVIDE 22KA SERIES BRANCH BREAKERS. PROVIDE FACTORY A INSTALLED NEUTRAL AND SEPARATE GROUNDING BUSS. PROVIDE MAIN BONDING JUMPER IN THIS LOAD CENTER. PROVIDE A RGS 2" NIPPLE FROM METER CABINET TO LOAD CENTER W/ 3-#3/0 & 1-#6 GRD W/ LOCKING WET LISTED LOCKING NUTS AND NYLON BUSHINGS. MOUNT TOP OF PANEL AT A MINIMUM OF 72 INCHES ABOVE EXISTING GRADE, NOT TO EXCEED MAXIMUM HEIGHT ALLOWED BY NEC-2020. PROVIDE A 100/2 AMP BREAKER TO SERVE THE LINE SIDE LUGS OF "MTS" THE DOUBLE-THROW SAFETY SWITCH. EXTEND FEEDER CONDUCTORS TO SERVE THE NEW RESTROOM BUILDING TERMINATED TO THE LOAD CENTER FEED THRU LUGS.
5. PROVIDE A 100 AMP, 240-VOLT NON-FUSED OUTDOOR RATED NEMA-3R, GENERAL DUTY DOUBLE-THROW SAFETY SWITCH. PROVIDE NAMEPLATE LABELING FOR ALL THREE POSITIONS. CONNECT THE NORMAL POWER FEED TO THE TOP OF THE SWITCH, THE GENERATOR RECEPTACLE FEED TO THE BOTTOM OF THE SWITCH, AND THE LOAD WIRING TO THE CENTER CONNECTIONS IN THE SWITCH. PROVIDE A SOLID NEUTRAL BAR AND A SEPARATE GROUND BUSS. DO NOT BOND THE NEUTRAL & GROUND WIRES IN THIS DISCONNECT SWITCH.
6. PROVIDE TWIST-LOCK GENERATOR PLUG 50 AMP, 125/250V AC, 3-POLE, 4WIRE GROUNDING FLANGED INLET IN NEMA-3R ENCLOSURE WITH WEATHERPROOF COVER. PROVIDE 3#8 1-#10(G) EA IN 3/4" C. THE NEW GENERATOR RECEPTACLE SHALL MATCH THE MATING PLUG THAT IS INSTALLED ON TPWD'S EXISTING TRAILER MOUNTED GENERATOR. THE CONTRACTOR SHALL COORDINATE THAT THE LIFT STATION GENERATOR RECEPTACLE MATES WITH TPWD'S GENERATOR MATING PLUG. PROVIDE LABEL STATING, "HOST SITE RV PEDESTAL CIRCUIT BREAKER SHALL BE TURNED OFF PRIOR TO USING GENERATOR TO SERVE LIFT STATION".
7. CONTRACTOR SHALL PROVIDE A UL-LISTED TYPE 2 SPD, SURGE PROTECTIVE DEVICE IN THE EXISTING AND PROPOSED ELECTRICAL LOAD CENTERS SHOWN ON THE RISER DIAGRAM. THE PROVIDED SURGE PROTECTIVE DEVICES SHALL BE MOUNTED TO THE ENCLOSURE WITH A CIRCUIT BREAKER TO PROVIDE OVERLOAD PROTECTION PER THE MANUFACTURERS INSTRUCTIONS. THE SURGE PROTECTIVE DEVICE SHALL HAVE SURGE CURRENT RATING EQUAL TO 50,000 AMPS PER LEG. SURGE PROTECTIVE DEVICE SHALL HAVE A LED OPERATION STATUS INDICATION IN A WEATHERPROOF ENCLOSURE. TERMINATE THE LEADS TO A BREAKER TRIP SETTING SIZED BASED ON THE MANUFACTURER RECOMMENDATIONS FOR THE SURGE PROTECTIVE DEVICE PROVIDED. FOR ALL FLUSH MOUNTED ELECTRICAL PANELS, PROVIDE A BUSS MOUNTED UL-LISTED TYPE 2 SPD.
8. THE CONTRACTOR SHALL PROVIDE A SURGE CAPACITOR (DELTA # CA-302RG W/ SEPARATE GROUND LEAD OR EQUAL) ON THE BOTTOM OF THE NEW LOAD CENTER ENCLOSURE. TERMINATE THE LEADS FROM EACH SURGE CAPACITOR DEVICE TO A DEDICATED NEW CIRCUIT BREAKER IN THE LOAD CENTER PER THE MANUFACTURERS INSTRUCTIONS.
9. PROVIDE 3 GROUND RODS IN A TRIAD CONFIGURATION WITH A 10 FOOT SEPARATION. THE CONTRACTOR SHALL ALSO PROVIDE A BARE, #2 AWG COPPER WIRE IN ONE CONTINUOUS LENGTH TO HELP ACHIEVE 25 OHMS OR LESS. THE BARE COPPER WIRE SHALL BE LACED IN TRENCH AND RUN UP TO 50' ROUTE AWAY FROM ELECTRICAL SERVICE IN A COMMON TRENCH WITH UNDERGROUND CONDUITS, LACE IN TRENCH IF NECESSARY. DO NOT BRING THIS WIRE UP A PULL BOX OR ENCLOSURE. THIS WIRE WILL ONLY BE CONNECTED TO THE MAIN GROUND ROD. THE PURPOSE OF THIS WIRE IS TO PROVIDE A LOW RESISTANCE GROUND PATH IN ADDITION TO THE GROUND RODS. PROVIDE A EXOTHERMIC WELDED CONNECTION.
10. PROVIDE WATERTIGHT WET LISTED SEALING LOCKING NUTS AND GROUNDING BUSHINGS ON SERVICE AND FEEDER CIRCUITS ENTRANCE ENCLOSURE CONDUIT ENTRIES ON THE SERVICE RATED ENCLOSED BREAKER, DOUBLE THROW SAFETY SWITCH AND LOAD CENTERS. PROVIDE WET LISTED LOCKING NUTS AND PLASTIC NYLON BUSHING INSULATORS ON ALL OTHER CONDUIT ENTRIES
11. SUPPORT AND SECURE ALL CONDUIT BELOW EACH ENCLOSURE.
12. FURNISH AND INSTALL ADHESIVE OSHA SAFETY SIGNS ON THE FRONT OF ALL EXISTING AND NEW ENCLOSURES. TWO BILINGUAL SIGNS THAT ARE PRINTED IN ENGLISH AND SPANISH ARE REQUIRED. ONE SIGN SHALL READ "DANGER! HIGH VOLTAGE" AND THIS SIGN SHALL HAVE A WHITE BACKGROUND WITH RED AND BLACK LETTERING, BE AT LEAST 3-1/2" WIDE BY 5" HIGH, BE SUITABLE FOR OUTDOOR LOCATIONS AND BE EQUAL TO SETON #07989. THE SECOND SIGN SHALL BE AN ARC FLASH WARNING SIGN AND THIS SIGN SHALL HAVE A WHITE BACKGROUND WITH ORANGE AND BLACK LETTERING, BE AT LEAST 6" WIDE BY 3-1/2" HIGH, BE SUITABLE FOR OUTDOOR LOCATIONS, AND SHALL BE EQUAL TO SETON #84624 OR #94311. REFER TO SHEET E2/DETAIL#2 TO IDENTIFY ALL ELECTRICAL EQUIPMENT.
13. ALL EQUIPMENT, ENCLOSURES, PULL BOXES, CONDUIT AND CONDUIT ENTRIES INSTALLED IN DAMP RATED AREAS AND/OR OUTDOOR LOCATIONS SHALL BE WET LISTED WITH A NEMA-3R ENCLOSURE RATING; ALL ENCLOSURES SHALL BE HINGED WITH A LOCKABLE HASP OR CLOSING HARDWARE.
14. PROVIDE PVC SCHEDULE 80 RISERS, ALL CONDUIT SHALL BE RIGID NON-METALLIC SCHEDULE 80 PVC, UNLESS NOTED OTHERWISE.

ELECTRICAL SYMBOLS AND LEGEND

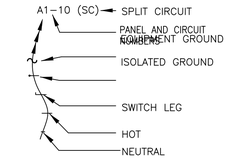
THE DRAWING PLAN SET USES THE ELECTRICAL SYMBOLS AND LEGEND TO DEFINE QUALITY CONTROL, TERMINATIONS, SWITCHES, RECEPTACLES, LIGHTING CONTROLS, LOAD CENTERS, ELECTRICAL EQUIPMENT, ABBREVIATIONS AND LINE TYPES THAT MAY BE CALLED OUT IN THE DRAWING PLAN SET. REFER TO ALL ELECTRICAL SHEETS TO IDENTIFY ALL REQUIREMENTS.

- DUPLEX RECEPTACLE
- DISCONNECT SWITCH
- DISTRIBUTION PANEL OR LOAD CENTER
- (J) JUNCTION BOX
- 120V 1PH CONNECTION
- 208V 1PH CONNECTION
- 208V 3PH CONNECTION
- 240V 1PH CONNECTION
- 240V 3PH CONNECTION
- (PC) PHOTO - CELL
- LIGHT FIXTURE
- EXIT SIGN
- EMERGENCY LIGHTING FIXTURE
- PP MODULAR FURNITURE POWER POLE
- FPP ELECTRICAL CONTRACTOR PROVIDED FREE STANDING POWER POLE WITH TWO RECESSED RECEPTACLES AND ONE STANDARD 2-DATA OUTLET

LISTED ABBREVIATIONS

BOF	BOTTOM OF FIXTURE
GFI	GROUND FAULT INTERUPT
WP	IN-USE WEATHERPROOF DEVICE OR ENCLOSURE
RGS	RIGID GALVANIZED STEEL CONDUIT
PVC	POLY VINYL CLORIDE CONDUIT
EMT	ELECTRICAL METALIC TUBING CONDUIT
AFR	ABOVE FINISHED ROOF
AFF	ABOVE FINISHED FLOOR
BFG	BELOW FINISHED GRADE
AFG	ABOVE FINISHED GRADE
SCH.	SCHEDULE
TYP.	TYPICAL

BRANCH CIRCUIT & WIRE NOTATION



- UGE — UNDERGROUND ELECTRICAL
- UVD — UNDERGROUND VOICE DATA
- UGT — UNDERGROUND TELEPHONE SERVICE

MAXIMUM FAULT CURRENT / REQUIRED LABELING

PROVIDE LABEL STATING EQUIPMENT SHALL BE DE-ENERGIZED, PRIOR TO PERFORMING MAINTENANCE OR REMOVAL OF DEAD FRONT. PROVIDE LABEL STATING MAXIMUM FAULT CURRENT WITH DATE.

MAXIMUM SHORT CIRCUIT CURRENT BASED ON POINT TO POINT CALCULATIONS. ASSUMING INFINITE BUSS WITH ALL PHASES BOLTED TOGETHER AND AT THE MAXIMUM UL LISTED TOLERANCE OF ± 10% IMPEDANCE TOLERANCE

EXISTING TRANSFORMER IS ASSUMING A 25 KVA / 120/240 1Ø / ASSUMING 3% TRANSFORMER IMPEDANCE.

SINGLE PHASE TRANSFORMER FULL LOAD CURRENT = TRANSFORMER KVA*1000/VOLTAGE = 25*1000/240= 104 AMPS.

SHORT CIRCUIT CURRENT (ISC LINE TO LINE)= TRANSFORMER FULL LOAD CURRENT / TRANSFORMER IMPEDANCE (Z).= 104/.03 = 3,466 AMPS AT TRANSFORMER LUGS.

ASSUMING NO SIGNIFICANT MOTOR CONTRIBUTIONS. ASSUME MAXIMUM WORST CASE FULL LOAD AMPS OF TRANSFORMER FAULT CURRENT = 312 AMPS MULTIPLY BY FOUR = 104*4 =416 AMPS

ASSUMING NO GENERATOR CONTRIBUTION

MAXIMUM WORST CASE FAULT CURRENT WITH MOTOR CONTRIBUTIONS AND ASSUMED NO GENERATOR CONTRIBUTIONS = 3,466 + 416 = 3,882 AMPS

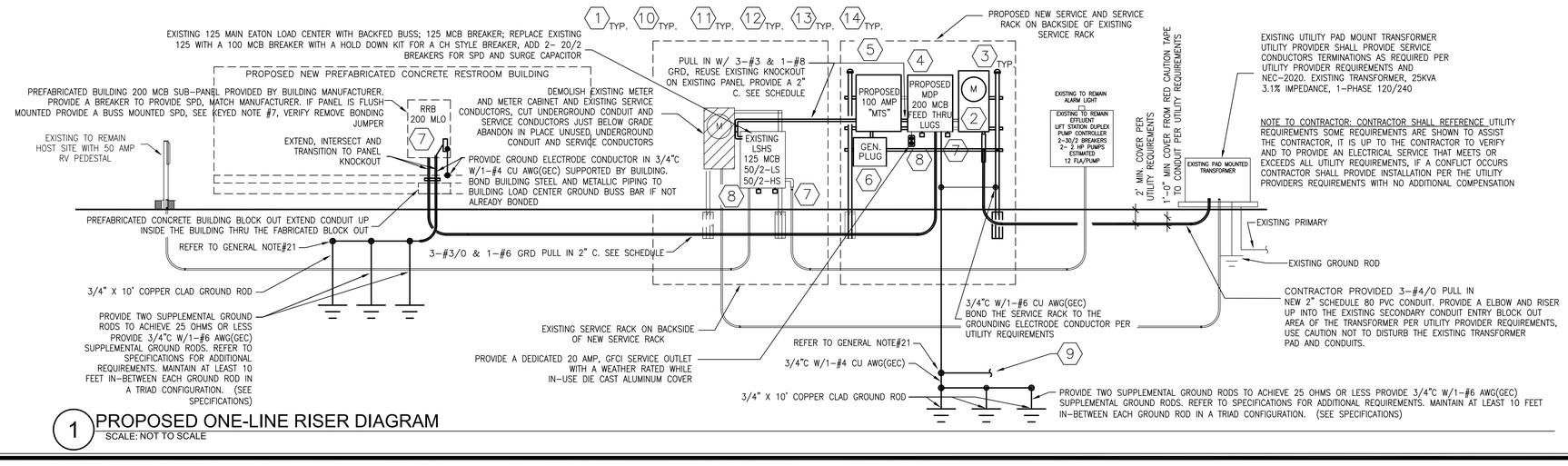
ELECTRICAL LOAD ANALYSIS

LIGHTING LOAD @ 125% (VA)					**845**
AREA (SQ FT)		520	x1.3 =	676	
CONNECTED LIGHT LOAD VA				480	
LIGHTING VA				676	
RECEPTACLE LOAD (VA)					**900**
CONNECTED RECPT LOAD		900			
1st 10KVA @ 100%		900			
REMAINDER @ 50%		0			

RV SITES	SITE QUANTITY	(VA) / SITE	CONNECTED VA	DEMAND %	ESTIMATED VA
30 AMP	0	3,600	-	1.00	0
50 AMP	1	12,000	12,000.00	1.00	12,000

TOTAL RV SITE ESTIMATED LOAD (VA)			**12,000**
GENERAL LOAD @100 (VA)			**9,120**
MOTOR LOAD @ 100% (VA)			**6,240**
LARGEST MOTOR LOAD @ 125% (VA)			**6,480**
COOLING LOAD @ 100% (VA)			**0**
HEATING LOAD @ 100% (VA)			**1,500**
ESTIMATED LOAD (VA)			**37,085**
ESTIMATED LOAD AMPS			**155**
SPARE CAPACITY (VA) @	27 %		**10,013**
SPARE CAPACITY AMPS			**42**
TOTAL SERVICE AMPS @ 240	**VOLTS**		**196**

COOLING AND HEATING LOADS ARE NONCOINCIDENT. ONLY THE LARGEST IS USED IN SERVICE CALCULATION



1 PROPOSED ONE-LINE RISER DIAGRAM
SCALE: NOT TO SCALE

NOTE:
PROVIDE AN ENGRAVED, LAMINATED NAMEPLATE FOR EACH NEW OR EXISTING DISCONNECT, PANELBOARD, CIRCUIT BREAKER ENCLOSURE, TRANSFORMER, OR OTHER ELECTRICAL ENCLOSURE. STATE THE DEVICES NAME, VOLTAGE, & PHASE ON THE NAMEPLATE. IF REQUIRED, STATE THAT THE DEVICE IS FED FROM THE EMERGENCY DISTRIBUTION SYSTEM. ALSO, STATE WHERE THE DEVICE FEEDS FROM.

FOR EXAMPLE, EMERGENCY PANEL N-1H-E, NAMEPLATE WOULD READ:
EMERGENCY PANEL N-1H-E
120/240 VOLT, 1-PHASE
FEEDS FROM EMERGENCY PANEL ME

FOR RECEPTACLE FACE PLATES, USE SMALL PRINTED LABELS OR OTHER SIMILAR LABELING WITH IDENTIFYING INFORMATION.

SEE SHEET E1 FOR ELECTRICAL SITE PLAN

TEXAS PARKS & WILDLIFE

STATE OF TEXAS
CARL OWEN NIX
93674
REGISTERED PROFESSIONAL ENGINEER
5/28/2021

CONSTRUCTION DRAWINGS

LAKE SOMERVILLS NAIL CREEK STATE PARK
REPLACE RESTROOM
PROJECT:1211045

DATE: 05-28-2021
DESIGNED BY: CN
DRAWN BY: CN
REVIEWED BY: CN
REVISED:
REVISED:
REVISED:

SHEET TITLE
ELECTRICAL ONE-LINE RISER SYMBOLS LEGEND SCHEDULES AND DETAILS

SHEET NUMBER
E2

DIVISION 26 ELECTRICAL SPECIFICATIONS

SECTION 26 00 00 – BASIC ELECTRICAL REQUIREMENTS

PART 1 – GENERAL

1.1 CODES AND STANDARDS:

CODES AND STANDARDS: ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE 2020 EDITION OF THE NATIONAL ELECTRIC CODE. THE PROJECT ELECTRICAL WORK SHALL BE PERFORMED BY A CONTRACTOR LICENSED WITH TDLR TO PERFORM ELECTRICAL WORK. THE ELECTRICAL WORK SHALL BE PERFORMED UNDER THE DIRECT, ON-SITE SUPERVISION OF A LICENSED, MASTER OR JOURNEYMAN ELECTRICIAN. SUBMIT COPIES OF THE LICENSES FOR ALL OF THE ELECTRICIANS THAT WILL PERFORM THE WORK. SUBMIT THIS INFORMATION AS PART OF THE PROJECT CONSTRUCTION SUBMITTAL INFORMATION.

1.2 MATERIAL SUBMITTALS:

A. SUBMIT UNDER PROVISIONS OF "TERMS AND CONDITIONS" OF THE CONTRACT.

B. MARK ALL SUBMITTAL LITERATURE TO INDICATE THE PRECISE SELECTION OF MATERIALS, DIMENSIONS AND EQUIPMENT SUBMITTED. NOTE THAT IF THE SPECIFIC MODEL OR MATERIAL IS NOT INDICATED IN THE SUBMITTAL, AND THERE IS MORE THAN ONE CHOICE POSSIBLE, THE SUBMITTAL MAY BE REJECTED AND A RESUBMITTAL WILL BE REQUIRED.

C. PROPOSED SUBMITTAL LIST SHALL INCLUDE ALL EQUIPMENT WITH MANUFACTURER OR MODEL NUMBERS CALLED OUT IN THE DRAWINGS. WHERE THE PLANS AND SPECIFICATIONS CALL OUT A MANUFACTURER OR MODEL NUMBER, CONTRACTOR SHALL PROVIDE AND SUBMIT THE EXACT MANUFACTURER AND MODEL NUMBER OR EQUAL PRODUCT PER THE TERMS AND CONDITIONS. REFERENCE THIS SHEET FOR THE REQUIRED SUBMITTALS INDICATED IN THE CONTRACTOR'S PROJECT SUBMITTAL LIST.

PART 2 – PRODUCTS

2.1 METAL RACEWAYS: RIGID STEEL CONDUIT:

A. PROVIDE RIGID STEEL, ZINC-COATED, THREADED TYPE CONFORMING TO ANSI C80.1 AND UL 6. PROVIDE ZINC COATING FUSED TO INSIDE AND OUTSIDE WALLS. RIGID METAL CONDUIT FITTINGS: CAST MALLEABLE IRON, GALVANIZED OR CADMIUM PLATED. ALL FITTINGS SHALL BE THREADED TYPE. THE USE OF SPLIT COUPLINGS IS UNACCEPTABLE. REFERENCE PLANS FOR CALLED OUT LOCATIONS.

2.2 NONMETALLIC CONDUIT:

A. PVC HEAVY WALL CONDUIT: SCHEDULE 80, 90 C, UL RATED, CONSTRUCT OF POLYVINYL CHLORIDE AND CONFORMING TO NEMA TC-2, FOR DIRECT BURIAL, OR NORMAL ABOVE GROUND USE, UL-LISTED AND IN CONFORMITY WITH NEC ARTICLE 352. FITTINGS FOR NON-METALLIC CONDUIT SHALL CONFORM TO NEMA TC3 AND SHALL BE SPECIFICALLY MANUFACTURED FOR ELECTRICAL CONDUIT. WATER PIPE FITTINGS WILL NOT BE ACCEPTED. REFERENCE PLANS FOR CALLED OUT LOCATIONS.

2.4 UNDERGROUND WARNING TAPE:

PROVIDE A DETECTIBLE CAUTION TAPE FOR THE LENGTH OF THE TRENCH. CAUTION TAP SHALL BE MANUFACTURED BY PRO-LINE'S DETECTABLE MARKING TAPE CONSISTS OF A MINIMUM 5.0 MIL OVERALL THICKNESS. CONSTRUCTION IS 0.8 MIL CLEAR VIRGIN POLYPROPYLENE FILM, REVERSE PRINTED AND LAMINATED TO A 0.35 SOLID ALUMINUM FOIL CORE AND THEN LAMINATED TO A 3.75 MIL CLEAR VIRGIN POLYETHYLENE FILM. TAPE SHALL BE PRINTED WITH APWA RED COLOR-CODED, PATENTED "DIAGONALLY STRIPED" DESIGN WITH BIG, BOLD, BLACK LETTERING TO IDENTIFY THE ELECTRICAL BURIED UTILITY LINE.

2.5 CONDUCTOR MATERIALS AND ACCESSORIES:

A. GENERAL USE SINGLE CONDUCTOR WIRE SHALL BE COPPER, TYPE THHN/THWN-2, UL LISTED FOR GENERAL USE AT A MAXIMUM OF 600 VOLTS AND A MAXIMUM TEMPERATURE OF 75 DEGREES C SUITED FOR DRY AND WET LOCATIONS AND GASOLINE PRESENT LOCATIONS. NUMBER 8 AWG AND LARGER SHALL BE STRANDED. ROMEX OR MC CABLE SHALL HAVE AN EQUIPMENT GROUND WIRE AND SHALL BE #12 AWG MINIMUM. ROMEX IS UNACCEPTABLE FOR OUTDOOR OR NON-CONCEALED LOCATIONS.

B. WIRE COLOR CODING FOR ALL NEW WIRING:

SYSTEM – 240/120 VAC, SINGLE PHASE

PHASE A	PHASE B	NEUTRAL	GROUND
BLACK	RED	WHITE	GREEN

WIRE COLORS SHALL BE INTEGRAL PIGMENTATION COLOR CODING FOR #8 AWG AND SMALLER WIRES, INCLUDING GROUND WIRES. FOR #6 AWG AND LARGER WIRES, COLORED PHASE TAPE SHALL BE APPLIED TO THE WIRE FOR IDENTIFICATION. TAPE SHALL BE APPLIED IN A SPIRAL, HALF-LAP MANNER OVER EXPOSED CONDUCTOR PORTIONS OF THE NEW AND EXISTING SERVICE AND FEEDER WIRING IN ATS SWITCHES, GENERATORS, SERVICE PEDESTALS, JUNCTION BOXES, LOAD CENTERS, PANELBOARDS, AND OTHER ENCLOSURES.

2.6 GROUNDING MATERIAL: SEE GROUND ELECTRODE TESTING IN THIS SPECIFICATION, PART 3.5.

A. NEW GROUND ELECTRODES: 3/4" X 10' LONG COPPER-BONDED GROUND RODS OR OTHER SPECIALLY DESIGNED GROUNDING SYSTEMS AS DESIGNATED BY THE ENGINEER.

B. GROUNDING ELECTRODE CONDUCTOR (GEC) CONNECTIONS: ALL GEC CONNECTIONS TO NEW GROUND ELECTRODES SHALL BE EXOTHERMIC TYPE CONNECTIONS. USING MECHANICAL OR COMPRESSION CLAMPS WILL NOT BE ALLOWED FOR CONNECTIONS TO NEW GROUND ELECTRODES.

PART 3 – EXECUTION

3.1 INSTALLATION OF CONDUITS:

A. MECHANICALLY FASTEN TOGETHER METAL CONDUITS, ENCLOSURES, AND RACEWAYS FOR CONDUCTORS TO FORM CONTINUOUS ELECTRICAL CONDUCTOR.

B. CONDUITS SHALL HAVE OPENINGS TEMPORARILY PLUGGED TO EXCLUDE FOREIGN MATERIALS AND BE RIGIDLY SUPPORTED SO AS TO PREVENT UNDUE STRESS OR STRAIN ON THE COUPLINGS, CONNECTORS OR FITTINGS.

C. ON ALL METAL CONDUITS, BUSHINGS SHALL BE OF THE INSULATED TYPE. RMC CONDUIT SHALL BE ATTACHED TO ENCLOSURES WITH DOUBLE LOCKNUTS AND BUSHINGS.

D. ALL CONDUIT SYSTEMS MUST BE INSTALLED COMPLETE BEFORE CONDUCTORS ARE PULLED IN AND BE ELECTRICALLY CONTINUOUS THROUGHOUT.

E. USE SCHEDULE RIGID NON-METALLIC SCHEDULE 80 PVC OR RGS CONDUIT FOR ALL NEW RISERS INTO THE ENCLOSURES.

F. CONDUIT ENTRIES INTO THE TOPS OF ENCLOSURES SHALL USE WEATHER-PROOF HUBS. CONDUIT ENTRIES IN THE SIDES OR BACKS OF ENCLOSURES SHALL USE SEALING LOCKNUTS.

3.2 UNDERGROUND CONDUIT INSTALLATION:

A. ALL NEW UNDERGROUND CONDUIT AND CONDUIT IN CONTACT WITH EARTH OR CONCRETE SHALL BE SCHEDULE 80 PVC CONDUIT WITH PLASTI-BOND UL-LISTED PVC COATED RGS 90 ELBOWS SEAL ALL THREADS AND COUPLINGS ON PVC COATED RGS CONDUIT WITH PLASTI-BOND GRAY SEALANT TOUCH UP COMPOUND DESIGNED TO REPAIR MINOR DAMAGE TO THE PVC FACTORY COATING.

B. FOR UNDERGROUND CONDUIT SEE THE TRENCH DETAIL AND NOTES ON THE DRAWINGS. RUN CONDUIT IN STRAIGHT LINES EXCEPT WHERE A CHANGE OF DIRECTION IS NECESSARY. PROVIDE NOT LESS THAN 3 INCHES CLEARANCE FROM THE CONDUIT TO EACH SIDE OF THE TRENCH. AS EACH CONDUIT RUN IS COMPLETE, ASSURE THAT THE CONDUIT INTERIOR IS FREE FROM DIRT OR DEBRIS. THEN IMMEDIATELY INSTALL CONDUIT PLUGS OR OTHERWISE COVER END OF CONDUIT TO PREVENT ENTRY OF FOREIGN MATERIAL UNTIL WIRE IS PULLED INTO CONDUIT. EXCEPT AT CONDUIT RISERS; ACCOMPLISH CHANGES IN DIRECTION OF RUNS EXCEEDING A TOTAL OF 10 DEGREES, EITHER VERTICAL OR HORIZONTAL, WITH LONG SWEEP BENDS. MANUFACTURED BENDS SHALL HAVE A MINIMUM RADIUS OF 18 INCHES FOR USE WITH CONDUITS OF LESS THAN 3 INCHES IN DIAMETER.

C. ALL UNDERGROUND ELECTRICAL CONDUITS SHALL BE PERMANENTLY IDENTIFIED WITH A COLORED, ELECTRICAL DETECTABLE IDENTIFICATION TAPE OVER THE CONDUIT SYSTEMS BEFORE BACKFILLING TRENCHES. ALL TAPE SHALL BE INSTALLED WITH THE WRITING FACE UP.

3.3 CONDUCTOR INSTALLATION:

A. SINGLE CONDUCTOR WIRING SHALL BE INSTALLED IN CONDUIT, A RACEWAY, BOX OR OTHER ENCLOSURE. NO CONDUCTORS OR CABLES SHALL BE INSTALLED IN CONDUITS, DUCT, OR RACEWAYS UNTIL THE RACEWAY OR CONDUIT SYSTEM HAS BEEN COMPLETED. WHEN INSTALLING CONDUCTORS, THE CONTRACTOR SHALL USE WIRE-PULLING COMPOUND WHEN INSTALLING ALL WIRING AND SHALL EXERCISE DUE CARE TO PREVENT DAMAGE TO CONDUCTORS OR INSULATION AND REPLACE ALL DAMAGED CABLE. TYPE THWN WIRING WITH THE OUTER NYLON JACKET DAMAGED WILL NOT BE ACCEPTED.

B. NO NEUTRAL WIRE OR GROUND WIRE SHALL BE TRIMMED OR SPLIT TO FIT SMALLER SIZED LUGS. IF OVERSIZED LUGS ARE INSTALLED ON A NEUTRAL OR GROUND BUSS TO ACCOMMODATE THE LARGER WIRE SIZES, WIRE SHALL BE ROUTED INTO THESE LUGS USING THE PROPER BENDING RADIUS AND TERMINATION METHODS.

C. ALL WIRING SHALL BE TERMINATED ON MAIN BREAKER LUGS, BRANCH BREAKER LUGS, SWITCH LUGS, NEUTRAL BAR/BUSS, OR GROUND BAR/BUSS. NO NEW CONDUCTOR SPLICES SHALL BE MADE IN AUTOMATIC TRANSFER SWITCHES, GENERATORS, CIRCUIT BREAKER ENCLOSURES, LOAD CENTERS, OR OTHER ELECTRICAL ENCLOSURES UNLESS SPECIFICALLY ALLOWED ON THE DRAWINGS.

3.4 IDENTIFICATION AND MARKINGS:

A. ON THE NEW AUTOMATIC TRANSFER SWITCHES, NEW LOAD CENTERS, EXISTING LOAD CENTERS, AND EXISTING CIRCUIT BREAKER ENCLOSURES INSTALL AN ENGRAVED, PLASTIC NAMEPLATE ON THE FRONT DOOR OF THE ENCLOSURE THAT STATES THE NAME, PHASE AND VOLTAGE OF THE EQUIPMENT. THE NAMEPLATES SHALL BE BLACK WITH WHITE LETTERS WITH A MINIMUM LETTER HEIGHT OF 1/4". THE NAMEPLATES SHALL BE INSTALLED ON THE DOOR WITH CORROSION RESISTANT RIVETS OR SCREWS THAT ARE SHORT ENOUGH TO PREVENT ANY CONTACT WITH LIVE PARTS INSIDE THE ENCLOSURE. FOR EXAMPLE EQUIPMENT NAMES ON THE NAMEPLATES SHOULD BE "LC" FOR LOAD CENTERS.

B. ON THE EXISTING OR NEW LOAD CENTERS AT THE ELECTRIC SERVICE POINTS: INSTALL AN ENGRAVED, PLASTIC NAMEPLATE ON THE INTERIOR COVER OF THE ENCLOSURE NEXT TO EACH LOAD BREAKER THAT STATES WHAT LOAD IS CONTROLLED BY THE BREAKER. THE NAMEPLATES SHALL BE BLACK WITH WHITE LETTERS WITH A MINIMUM LETTER HEIGHT OF 1/4". THE NAMEPLATES SHALL BE INSTALLED ON THE INTERIOR COVER WITH CORROSION RESISTANT RIVETS OR SCREWS THAT ARE SHORT ENOUGH TO PREVENT ANY CONTACT WITH LIVE PARTS INSIDE THE ENCLOSURE.

C. EACH NEW CONDUCTOR GROUP IN LOAD CENTERS, CIRCUIT BREAKER ENCLOSURES, AUTOMATIC TRANSFER SWITCHES, GENERATOR ELECTRICAL ENCLOSURE, OR OTHER ENCLOSURES SHALL HAVE A PERMANENT, LEGIBLE WIRE MARKING LABEL WITH SUITABLE NUMBERS TO SHOW THE DESTINATION OF THE WIRING. THIS DESIGNATION SHALL CALL OUT THE DESTINATION OF THE NEW WIRING SUCH AS "TO ATS-1" OR "TO METER" OR "TO GENERATOR" OR "TO LOAD CENTER".

3.5 GROUND SYSTEM TESTS:

ALL ELECTRICAL, OPERATIONAL, AND GROUND SYSTEM TESTS SHALL BE WITNESSED BY TPWD CONSTRUCTION PERSONNEL.

A. EACH NEW GROUND ELECTRODE WILL BE TESTED BY A TPWD ELECTRICAL INSPECTOR AFTER INSTALLATION USING A GROUND ROD RESISTANCE TESTER EQUAL TO AEMC MODEL #6416 OR USING A FALL-OF-POTENTIAL GROUND RESISTANCE TESTER. THE MAXIMUM RESISTANCE FOR EACH GROUND ELECTRODE SYSTEM SHALL BE LESS THAN 25 OHMS. AFTER THESE GROUND ELECTRODE RESISTANCE TESTS, IF A GROUND ELECTRODE OR COMBINATION OF GROUND ELECTRODES HAS A RESISTANCE HIGHER THAN 25 OHMS, THE CONTRACTOR SHALL ADD A SUPPLEMENTAL GROUNDING TO THE GROUND SYSTEM TO LOWER THIS RESISTANCE BY INSTALLING AND INTERCONNECTING A ADDITIONAL GROUND ELECTRODES. THE ADDITIONAL ELECTRODES SHALL BE INSTALLED WITH A MINIMUM OF 10' AWAY FROM EACH ELECTRODE AND CONNECTED USING A BARE, #6 AWG, COPPER WIRE, EMBED IN COMPACTED BACKFILL SOIL. THE CONTRACTOR SHALL ACCOUNT FOR A MINIMUM OF THREE GROUND ELECTRODES THE PRIMARY ELECTRODE AND TWO SUPPLEMENTAL GROUND ELECTRODES IN THEIR BID, AFTER THE THIRD GROUND ELECTRODE IS INSTALLED RETEST FOR DOCUMENTATION IF THE RESISTANCE REMAINS HIGHER THAN 25 OHMS, CONTACT THE ENGINEER TO VERIFY IF ANY ADDITIONAL ACTION IS REQUIRED. ALL READINGS SHALL BE DOCUMENTED AND SUBMITTED TO THE ENGINEER FOR REVIEW.

B. AFTER CORRECTIVE MEASURES ARE COMPLETE FOR A GROUND SYSTEM, THE GROUND SYSTEM INSTALLATION SHALL BE RE-TESTED BY THE TPWD ELECTRICAL INSPECTOR WITH A GROUND ELECTRODE TESTER TO VERIFY THE RESISTANCE OF THE SYSTEM. GROUND ELECTRODE RESISTANCE TEST RESULTS WILL BE DOCUMENTED BY THE TPWD ELECTRICAL INSPECTOR AS PART OF ONE OF THE INSPECTION REPORTS FOR THE PROJECT. THESE TEST RESULTS SHALL INCLUDE GROUND SYSTEM RESISTANCE VALUES AND THE WEATHER AND SOIL CONDITIONS PRESENT DURING THE TESTS.

C. THE CONTRACTOR SHALL ALSO PERFORM VOLTAGE TESTS AFTER ALL ELECTRICAL EQUIPMENT HAS BEEN CONNECTED AND READY TO USE TO ASSURE THAT THE PROPER VOLTAGE IS AVAILABLE AT EACH EXISTING OR NEW LOAD CENTER, BREAKER, AUTOMATIC TRANSFER SWITCH, GENERATOR, OR OTHER ELECTRICAL ITEM.

3.6 ALL ELECTRICAL, OPERATIONAL, AND CONDUCTOR INSULATION TEST SHALL BE WITNESSED BY TPWD CONSTRUCTION PERSONNEL.

A. TEST INSTALLATION AFTER NEW WIRING IS COMPLETED AND WHEN EQUIPMENT IS CONNECTED AND READY FOR USE.

B. RESISTANCE BETWEEN CONDUCTORS AND BETWEEN EACH CONDUCTOR AND GROUND SHALL BE TESTED FOR ALL SERVICE ENTRANCE CONDUCTORS AND BRANCH FEEDER CONDUCTORS FOR ALL CONDUCTORS #6 AND LARGER. CONDUCTORS SHALL PASS A 500 VOLT MEGGER TEST PRIOR TO PLACING IN SERVICE WITH A MINIMUM ACCEPTABLE INSULATION RESISTANCE EQUAL TO OR GREATER THAN 100 MEG OHMS.

CONTRACTOR'S PROJECT REQUIRED SUBMITTALS:

CONTRACTOR'S LIST OF MATERIALS AND PRODUCTS REQUIRING A SUBMITTAL FOR REVIEW PRIOR TO INSTALLATION	MANUFACTURER'S PRODUCT INFO	INSTALLATION INSTRUCTIONS	MANUFACTURER MODEL NUMBER AND DESCRIPTION	LEGIBLE PHOTO OF MATERIAL	LEGIBLE PHOTO OF INSTRUCTION LABEL	SAMPLE TO ENGINEER	SAMPLE TO CONSTR. MANGR.	REFERENCE SPECIFICATION SECTION 26 05 00 PART 1.3/D
LOAD CENTERS	YES		YES	YES				
CIRCUIT BREAKERS	YES		YES	YES				
GROUND RODS AND GROUNDING PLATES	YES		YES	YES				
GROUND ROD TERMINATION CONNECTIONS	YES	YES	YES	YES	YES			
ENCLOSED BREAKERS	YES		YES	YES				
CAPACITOR AND SURGE PROTECTION DEVICES	YES	YES	YES	YES	YES			
CONDUCTORS	YES		YES	YES				
RACEWAYS	YES		YES	YES				
PULL BOXES AND CONDUIT BODIES	YES		YES	YES				
CHANNEL STRUT AND RACK SUPPORTS	YES		YES	YES				
METER CABINET	YES		YES	YES				

YES --MEANS YOU MUST SUBMIT THIS
either--MEANS YOU MUST SEND IN ONE OR THE OTHER.

WARRANTY (SUBMITTED AT CLOSE OUT.)
A. CONTRACTOR'S ONE YEAR LABOR AND MATERIAL WARRANTY CERTIFICATE WITH INSTRUCTIONS AND CONTACT INFORMATION OR WARRANTY WORK.
B. MANUFACTURER'S EXTENDED WARRANTIES.

TEXAS PARKS & WILDLIFE

STATE OF TEXAS
CARL OWEN NIX
93674
REGISTERED PROFESSIONAL ENGINEER
5/28/2021

LAKE SOMERVILLS NAIL CREEK STATE PARK
REPLACE RESTROOMS
PROJECT:1211045

DATE: 05-28-2021
DESIGNED BY: CN
DRAWN BY: CN
REVIEWED BY: CN
REVISED:
REVISED:
REVISED:

CONSTRUCTION DRAWINGS

SHEET TITLE
ELECTRICAL SPECIFICATIONS

SHEET NUMBER
E3